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Erk-1 and Erk-2 kinases (1 hr at RT). This antibody is biotinylated by standard procedures. The bound polyclonal antibody is then quantitated by successive incubations with Europium-streptavidin and Europium fluorescence enhancing reagent in the Wallac DELFIA instrument (time-resolved fluorescence). An increased fluorescent signal over background indicates a phosphorylation by polypeptide of the present invention or a molecule induced by polypeptide of the present invention.

Example 42: Assay for the Stimulation of Bone Marrow CD34+ Cell Proliferation

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This assay is based on the ability of human CD34+ to proliferate in the presence of hematopoietic growth factors and evaluates the ability of isolated polypeptides expressed in mammalian cells to stimulate proliferation of CD34+ cells.

It has been previously shown that most mature precursors will respond to only a single signal. More immature precursors require at least two signals to respond. Therefore, to test the effect of polypeptides on hematopoietic activity of a wide range of progenitor cells, the assay contains a given polypeptide in the presence or absence of other hematopoietic growth factors. Isolated cells are cultured for 5 days in the presence of Stem Cell Factor (SCF) in combination with tested sample. SCF alone has a very limited effect on the proliferation of bone marrow (BM) cells, acting in such conditions only as a "survival" factor. However, combined with any factor exhibiting stimulatory effect on these cells (e.g., IL-3), SCF will cause a synergistic effect. Therefore, if the tested polypeptide has a stimulatory effect on a hematopoietic progenitors, such activity can be easily detected. Since normal BM cells have a low level of cycling cells, it is likely that any inhibitory effect of a given polypeptide, or agonists or antagonists thereof, might not be detected. Accordingly, assays for an inhibitory effect on progenitors is preferably tested in cells that are first subjected to in vitro stimulation with SCF+IL+3, and then contacted with the compound that is being evaluated for inhibition of such induced proliferation.

Briefly, CD34+ cells are isolated using methods known in the art. The cells are thawed and resuspended in medium (QBSF 60 serum-free medium with 1% L-

glutamine (500ml) Quality Biological. Inc., Gaithersburg, MD Cat# 160-204-101). After several gentle centrifugation steps at 200 x g, cells are allowed to rest for one hour. The cell count is adjusted to 2.5 x 10⁵ cells/ml. During this time, 100 µl of sterile water is added to the peripheral wells of a 96-well plate. The cytokines that can be tested with a given polypeptide in this assay is rhSCF (R&D Systems, Minneapolis, MN, Cat# 255-SC) at 50 ng/ml alone and in combination with rhSCF and rhIL-3 (R&D Systems, Minneapolis, MN, Cat# 203-ML) at 30 ng/ml. After one hour, 10 µl of prepared cytokines, 50 µl of the supernatants prepared in Example 31 (supernatants at 1:2 dilution = 50 µl) and 20 µl of diluted cells are added to the media which is already present in the wells to allow for a final total volume of 100 µl. The plates are then placed in a 37°C/5% CO₂ incubator for five days.

Eighteen hours before the assay is harvested, 0.5 μCi/well of [3H] Thymidine is added in a 10 μl volume to each well to determine the proliferation rate. The experiment is terminated by harvesting the cells from each 96-well plate to a filtermat using the Tomtec Harvester 96. After harvesting, the filtermats are dried, trimmed and placed into OmniFilter assemblies consisting of one OmniFilter plate and one OmniFilter Tray. 60 μl Microscint is added to each well and the plate sealed with TopSeal-A press-on sealing film. A bar code 15 sticker is affixed to the first plate for counting. The sealed plates is then loaded and the level of radioactivity determined via the Packard Top Count and the printed data collected for analysis. The level of radioactivity reflects the amount of cell proliferation.

The studies described in this example test the activity of a given polypeptide to stimulate bone marrow CD34+ cell proliferation. One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof. As a nonlimiting example, potential antagonists tested in this assay would be expected to inhibit cell proliferation in the presence of cytokines and/or to increase the inhibition of cell proliferation in the presence of cytokines and a given polypeptide. In contrast, potential agonists tested in this assay would be expected to enhance cell proliferation and/or to decrease the inhibition of cell proliferation in the presence of

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cytokines and a given polypeptide.

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The ability of a gene to stimulate the proliferation of bone marrow CD34+ cells indicates that polynucleotides and polypeptides corresponding to the gene are useful for the diagnosis and treatment of disorders affecting the immune system and hematopoiesis. Representative uses are described in the "Immune Activity" and "Infectious Disease" sections above, and elsewhere herein.

Example 43: Assay for Extracellular Matrix Enhanced Cell Response (EMECR)

The objective of the Extracellular Matrix Enhanced Cell Response (EMECR) assay is to identify gene products (e.g., isolated polypeptides) that act on the hematopoietic stem cells in the context of the extracellular matrix (ECM) induced signal.

Cells respond to the regulatory factors in the context of signal(s) received from the surrounding microenvironment. For example, fibroblasts, and endothelial and epithelial stem cells fail to replicate in the absence of signals from the ECM. Hematopoietic stem cells can undergo self-renewal in the bone marrow, but not in in vitro suspension culture. The ability of stem cells to undergo self-renewal in vitro is dependent upon their interaction with the stromal cells and the ECM protein fibronectin (fn). Adhesion of cells to fn is mediated by the α_5 . β_1 and α_4 . β_1 integrin receptors, which are expressed by human and mouse hematopoietic stem cells. The factor(s) which integrate with the ECM environment and responsible for stimulating stem cell self-renewal has not yet been identified. Discovery of such factors should be of great interest in gene therapy and bone marrow transplant applications

Briefly, polystyrene, non tissue culture treated, 96-well plates are coated with fn fragment at a coating concentration of $0.2~\mu g/~cm^2$. Mouse bone marrow cells are plated (1,000 cells/well) in 0.2~ml of serum-free medium. Cells cultured in the presence of IL-3 (5~ng/ml) + SCF (50~ng/ml) would serve as the positive control, conditions under which little self-renewal but pronounced differentiation of the stem

cells is to be expected. Gene products of the invention (e.g., including, but not limited to, polynucleotides and polypeptides of the present invention, and supernatants produced in Example 31), are tested with appropriate negative controls in the presence and absence of SCF(5.0 ng/ml), where test factor supernates represent 10% of the total assay volume. The plated cells are then allowed to grow by incubating in a low oxygen environment (5% CO₂, 7% O₂, and 88% N₂) tissue culture incubator for 7 days. The number of proliferating cells within the wells is then quantitated by measuring thymidine incorporation into cellular DNA. Verification of the positive hits in the assay will require phenotypic characterization of the cells, which can be accomplished by scaling up of the culture system and using appropriate antibody reagents against cell surface antigens and FACScan.

One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof.

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If a particular polypeptide of the present invention is found to be a stimulator of hematopoietic progenitors, polynucleotides and polypeptides corresponding to the gene encoding said polypeptide may be useful for the diagnosis and treatment of disorders affecting the immune system and hematopoiesis. Representative uses are described in the "Immune Activity" and "Infectious Disease" sections above, and elsewhere herein. The gene product may also be useful in the expansion of stem cells and committed progenitors of various blood lineages, and in the differentiation and/or proliferation of various cell types.

Additionally, the polynucleotides and/or polypeptides of the gene of interest and/or agonists and/or antagonists thereof, may also be employed to inhibit the proliferation and differentiation of hematopoietic cells and therefore may be employed to protect bone marrow stem cells from chemotherapeutic agents during chemotherapy. This antiproliferative effect may allow administration of higher doses of chemotherapeutic agents and, therefore, more effective chemotherapeutic treatment.

Moreover, polynucleotides and polypeptides corresponding to the gene of

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interest may also be useful for the treatment and diagnosis of hematopoietic related disorders such as, for example, anemia, pancytopenia, leukopenia, thrombocytopenia or leukemia since stromal cells are important in the production of cells of hematopoietic lineages. The uses include bone marrow cell ex-vivo culture, bone marrow transplantation, bone marrow reconstitution, radiotherapy or chemotherapy of neoplasia.

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Example 44: Human Dermal Fibroblast and Aortic Smooth Muscle Cell Proliferation

The polypeptide of interest is added to cultures of normal human dermal fibroblasts (NHDF) and human aortic smooth muscle cells (AoSMC) and two coassays are performed with each sample. The first assay examines the effect of the polypeptide of interest on the proliferation of normal human dermal fibroblasts (NHDF) or aortic smooth muscle cells (AoSMC). Aberrant growth of fibroblasts or smooth muscle cells is a part of several pathological processes, including fibrosis, and restenosis. The second assay examines IL6 production by both NHDF and SMC. IL6 production is an indication of functional activation. Activated cells will have increased production of a number of cytokines and other factors, which can result in a proinflammatory or immunomodulatory outcome. Assays are run with and without co-TNFa stimulation, in order to check for costimulatory or inhibitory activity.

Briefly, on day 1, 96-well black plates are set up with 1000 cells/well (NHDF) or 2000 cells/well (AoSMC) in 100 µl culture media. NHDF culture media contains: Clonetics FB basal media, 1mg/ml hFGF, 5mg/ml insulin, 50mg/ml gentamycin, 2%FBS, while AoSMC culture media contains Clonetics SM basal media, 0.5 µg/ml hEGF, 5mg/ml insulin, 1µg/ml hFGF, 50mg/ml gentamycin, 50 µg/ml Amphotericin B, 5%FBS. After incubation at 37°C for at least 4-5 hours, culture media is aspirated and replaced with growth arrest media. Growth arrest media for NHDF contains fibroblast basal media, 50mg/ml gentamycin, 2% FBS, while growth arrest media for AoSMC contains SM basal media, 50mg/ml gentamycin, 50µg/ml Amphotericin B, 0.4% FBS. Incubate at 37°C until day 2.

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On day 2, serial dilutions and templates of the polypeptide of interest are designed such that they always include media controls and known-protein controls. For both stimulation and inhibition experiments, proteins are diluted in growth arrest media. For inhibition experiments, TNFa is added to a final concentration of 2ng/ml (NHDF) or 5ng/ml (AoSMC). Add 1/3 vol media containing controls or polypeptides of the present invention and incubate at 37°C/5% CO₂ until day 5.

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Transfer 60µl from each well to another labeled 96-well plate, cover with a plate-sealer, and store at 4°C until Day 6 (for IL6 ELISA). To the remaining 100 µl in the cell culture plate, aseptically add Alamar Blue in an amount equal to 10% of the culture volume (10µl). Return plates to incubator for 3 to 4 hours. Then measure fluorescence with excitation at 530nm and emission at 590nm using the CytoFluor. This yields the growth stimulation/inhibition data.

On day 5, the IL6 ELISA is performed by coating a 96 well plate with 50-100 ul/well of Anti-Human IL6 Monoclonal antibody diluted in PBS, pH 7.4, incubate ON at room temperature.

On day 6, empty the plates into the sink and blot on paper towels. Prepare Assay Buffer containing PBS with 4% BSA. Block the plates with 200 µl/well of Pierce Super Block blocking buffer in PBS for 1-2 hr and then wash plates with wash buffer (PBS, 0.05% Tween-20). Blot plates on paper towels. Then add 50 µl/well of diluted Anti-Human IL-6 Monoclonal, Biotin-labeled antibody at 0.50 mg/ml. Make dilutions of IL-6 stock in media (30, 10, 3, 1, 0.3, 0 ng/ml). Add duplicate samples to top row of plate. Cover the plates and incubate for 2 hours at RT on shaker. Plates are washed with wash buffer and blotted on paper towels. Dilute EU-labeled Streptavidin 1:1000 in Assay buffer, and add 100 µl/well. Cover the plate and incubate 1 h at RT. Plates are again washed with wash buffer and blotted on paper towels. Add 100 µl/well of Enhancement Solution and shake for 5 minutes. Read the plate on the Wallac DELFIA Fluorometer. Readings from triplicate samples in each assay are tabulated and averaged.

A positive result in this assay suggests AoSMC cell proliferation and that the polypeptide of the present invention may be involved in dermal fibroblast

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proliferation and/or smooth muscle cell proliferation. A positive result also suggests many potential uses of polypeptides, polynucleotides, agonists and/or antagonists of the polynucleotide/polypeptide of the present invention which gives a positive result. For example, inflammation and immune responses, wound healing, and angiogenesis. as detailed throughout this specification. Particularly, polypeptides of the present invention and polynucleotides of the present invention may be used in wound healing and dermal regeneration, as well as the promotion of vasculargenesis, both of the blood vessels and lymphatics. The growth of vessels can be used in the treatment of, for example, cardiovascular diseases. Additionally, antagonists of polypeptides and polynucleotides of the invention may be useful in treating diseases, disorders, and/or conditions which involve angiogenesis by acting as an anti-vascular (e.g., antiangiogenesis). These diseases, disorders, and/or conditions are known in the art and/or are described herein, such as, for example, malignancies, solid tumors, benign tumors, for example hemangiomas, acoustic neuromas, neurofibromas, trachomas, and pyogenic granulomas; artheroscleric plaques; ocular angiogenic diseases, for example, diabetic retinopathy, retinopathy of prematurity, macular degeneration, corneal graft rejection, neovascular glaucoma, retrolental fibroplasia, rubeosis, retinoblastoma, uvietis and Pterygia (abnormal blood vessel growth) of the eye; rheumatoid arthritis; psoriasis; delayed wound healing; endometriosis; vasculogenesis; granulations; hypertrophic scars (keloids); nonunion fractures; scleroderma; trachoma; vascular adhesions; myocardial angiogenesis; coronary collaterals; cerebral collaterals; arteriovenous malformations; ischemic limb angiogenesis; Osler-Webber Syndrome; plaque neovascularization; telangiectasia; hemophiliac joints; angiofibroma; fibromuscular dysplasia; wound granulation; Crohn's disease; and atherosclerosis. Moreover, antagonists of polypeptides and polynucleotides of the invention may be useful in treating anti-hyperproliferative diseases and/or anti-inflammatory known in the art and/or described herein.

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One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof.

Example 45: Cellular Adhesion Molecule (CAM) Expression on Endothelial Cells

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The recruitment of lymphocytes to areas of inflammation and angiogenesis involves specific receptor-ligand interactions between cell surface adhesion molecules (CAMs) on lymphocytes and the vascular endothelium. The adhesion process, in both normal and pathological settings, follows a multi-step cascade that involves intercellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1), and endothelial leukocyte adhesion molecule-1 (E-selectin) expression on endothelial cells (EC). The expression of these molecules and others on the vascular endothelium determines the efficiency with which leukocytes may adhere to the local vasculature and extravasate into the local tissue during the development of an inflammatory response. The local concentration of cytokines and growth factor participate in the modulation of the expression of these CAMs.

Briefly, endothelial cells (e.g., Human Umbilical Vein Endothelial cells (HUVECs)) are grown in a standard 96 well plate to confluence, growth medium is removed from the cells and replaced with 100 μl of 199 Medium (10% fetal bovine serum (FBS)). Samples for testing and positive or negative controls are added to the plate in triplicate (in 10 μl volumes). Plates are then incubated at 37°C for either 5 h (selectin and integrin expression) or 24 h (integrin expression only). Plates are aspirated to remove medium and 100 μl of 0.1% paraformaldehyde-PBS(with Ca++ and Mg++) is added to each well. Plates are held at 4°C for 30 min. Fixative is removed from the wells and wells are washed 1X with PBS(+Ca,Mg) + 0.5% BSA and drained. 10 μl of diluted primary antibody is added to the test and control wells. Anti-ICAM-1-Biotin, Anti-VCAM-1-Biotin and Anti-E-selectin-Biotin are used at a concentration of 10 μg/ml (1:10 dilution of 0.1 mg/ml stock antibody). Cells are incubated at 37°C for 30 min. in a humidified environment. Wells are washed three times with PBS(+Ca,Mg) + 0.5% BSA. 20 μl of diluted ExtrAvidin-Alkaline Phosphotase (1:5,000 dilution, refered to herein as the working dilution) are added to

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each well and incubated at 37°C for 30 min. Wells are washed three times with PBS(+Ca,Mg)+0.5% BSA. Dissolve I tablet of p-Nitrophenol Phosphate pNPP per 5 ml of glycine buffer (pH 10.4). 100 μ l of pNPP substrate in glycine buffer is added to each test well. Standard wells in triplicate are prepared from the working dilution of the ExtrAvidin-Alkaline Phosphotase in glycine buffer: 1:5,000 (10°) > 10°0.5 > 10°1.5 × 10°1

15 Example 46: Alamar Blue Endothelial Cells Proliferation Assay

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This assay may be used to quantitatively determine protein mediated inhibition of bFGF-induced proliferation of Bovine Lymphatic Endothelial Cells (LECs), Bovine Aortic Endothelial Cells (BAECs) or Human Microvascular Uterine Myometrial Cells (UTMECs). This assay incorporates a fluorometric growth indicator based on detection of metabolic activity. A standard Alamar Blue Proliferation Assay is prepared in EGM-2MV with 10 ng /ml of bFGF added as a source of endothelial cell stimulation. This assay may be used with a variety of endothelial cells with slight changes in growth medium and cell concentration. Dilutions of the protein batches to be tested are diluted as appropriate. Serum-free medium (GIBCO SFM) without bFGF is used as a non-stimulated control and Angiostatin or TSP-1 are included as a known inhibitory controls.

Briefly, LEC, BAECs or UTMECs are seeded in growth media at a density of 5000 to 2000 cells/well in a 96 well plate and placed at 37-C overnight. After the overnight incubation of the cells, the growth media is removed and replaced with

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GIBCO EC-SFM. The cells are treated with the appropriate dilutions of the protein of interest or control protein sample(s) (prepared in SFM) in triplicate wells with additional bFGF to a concentration of 10 ng/ml. Once the cells have been treated with the samples, the plate(s) is/are placed back in the 37° C incubator for three days. After three days 10 ml of stock alamar blue (Biosource Cat# DAL1100) is added to each well and the plate(s) is/are placed back in the 37°C incubator for four hours. The plate(s) are then read at 530nm excitation and 590nm emission using the CytoFluor fluorescence reader. Direct output is recorded in relative fluorescence units.

Alamar blue is an oxidation-reduction indicator that both fluoresces and changes color in response to chemical reduction of growth medium resulting from cell growth. As cells grow in culture, innate metabolic activity results in a chemical reduction of the immediate surrounding environment. Reduction related to growth causes the indicator to change from oxidized (non-fluorescent blue) form to reduced (fluorescent red) form. i.e. stimulated proliferation will produce a stronger signal and inhibited proliferation will produce a weaker signal and the total signal is proportional to the total number of cells as well as their metabolic activity. The background level of activity is observed with the starvation medium alone. This is compared to the output observed from the positive control samples (bFGF in growth medium) and protein dilutions.

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Example 47: Detection of Inhibition of a Mixed Lymphocyte Reaction

This assay can be used to detect and evaluate inhibition of a Mixed Lymphocyte Reaction (MLR) by gene products (e.g., isolated polypeptides). Inhibition of a MLR may be due to a direct effect on cell proliferation and viability, modulation of costimulatory molecules on interacting cells, modulation of adhesiveness between lymphocytes and accessory cells, or modulation of cytokine production by accessory cells. Multiple cells may be targeted by these polypeptides since the peripheral blood mononuclear fraction used in this assay includes T, B and

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natural killer lymphocytes, as well as monocytes and dendritic cells.

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Polypeptides of interest found to inhibit the MLR may find application in diseases associated with lymphocyte and monocyte activation or proliferation. These include, but are not limited to, diseases such as asthma, arthritis, diabetes, inflammatory skin conditions, psoriasis, eczema, systemic lupus erythematosus, multiple sclerosis, glomerulonephritis, inflammatory bowel disease, crohn's disease, ulcerative colitis, arteriosclerosis, cirrhosis, graft vs. host disease, host vs. graft disease, hepatitis, leukemia and lymphoma.

Briefly, PBMCs from human donors are purified by density gradient centrifugation using Lymphocyte Separation Medium (LSM[®], density 1.0770 g/ml, Organon Teknika Corporation, West Chester, PA). PBMCs from two donors are adjusted to 2 x 10⁶ cells/ml in RPMI-1640 (Life Technologies, Grand Island, NY) supplemented with 10% FCS and 2 mM glutamine. PBMCs from a third donor is adjusted to 2 x 10⁵ cells/ml. Fifty microliters of PBMCs from each donor is added to wells of a 96-well round bottom microtiter plate. Dilutions of test materials (50 μl) is added in triplicate to microtiter wells. Test samples (of the protein of interest) are added for final dilution of 1:4; rhuIL-2 (R&D Systems, Minneapolis, MN, catalog number 202-IL) is added to a final concentration of 1 μg/ml; anti-CD4 mAb (R&D Systems, clone 34930.11, catalog number MAB379) is added to a final concentration of 10 μg/ml. Cells are cultured for 7-8 days at 37°C in 5% CO₂, and 1 μC of [³H] thymidine is added to wells for the last 16 hrs of culture. Cells are harvested and thymidine incorporation determined using a Packard TopCount. Data is expressed as the mean and standard deviation of triplicate determinations.

Samples of the protein of interest are screened in separate experiments and compared to the negative control treatment, anti-CD4 mAb, which inhibits proliferation of lymphocytes and the positive control treatment, IL-2 (either as recombinant material or supernatant), which enhances proliferation of lymphocytes.

One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof.

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It will be clear that the invention may be practiced otherwise than as particularly described in the foregoing description and examples. Numerous modifications and variations of the present invention are possible in light of the above teachings and, therefore, are within the scope of the appended claims.

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The entire disclosure of each document cited (including patents, patent applications, journal articles, abstracts, laboratory manuals, books, or other disclosures) in the Background of the Invention, Detailed Description, and Examples is hereby incorporated herein by reference. Further, the hard copy of the sequence listing submitted herewith and the corresponding computer readable form are both incorporated herein by reference in their entireties. Moreover, the hard copy of and the corresponding computer readable form of the Sequence Listing of Serial No. 60/124,270 are also incorporated herein by reference in their entireties.

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Applicant's or agent's file reference number	PA103PCT	International application	. (0.

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made be	70	mrefer	·
on page	72 , line		N/A
B. IDENTIFICATIONOF	DEPOSIT		Further deposits are identified on an additional sheet
Name of depositary institutio	n American Type Cu	ıltur	e Collection
Address of depositary instit	ution (including partal and a		
	10801 University		
	Manassas, Virgin		
	United States of	f Ame	rica
Date of deposit			Accession Number
• •	May 1997		209059
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D. DESIGNATED STAT	ES FOR WHICH INDICA	ATTON	IS ARE MADE (if the indications are not for all designated States)
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The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

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The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

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Applicant's or agent's file reference number	PA103PCT	International application	

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A. The indications made below relate to the microorganism refer on page	red to in the description N/A .
B. IDENTIFICATIONOF DEPOSIT	Further deposits are identified on an additional sheet
Name of depositary institution American Type Cultu	re Collection
Address of depositary institution (including postal code and count 10801 University Bo Manassas, Virginia United States of Am	oulevard 20110-2209
Date of deposit	Accession Number
20 May 1997	209060
C. ADDITIONAL INDICATIONS (leave blank if not applicable	(e) This information is continued on an additional sheet
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NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

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SWEDEN

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NETHERLANDS

417

Applicant's or agent's file reference number	PA103PCT	International application N

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referre	ed to in the description
on page, line	N/A .
B. IDENTIFICATIONOF DEPOSIT	Further deposits are identified on an additional sheet
Name of depositary institution American Type Cultur	e Collection
Address of depositary institution (including postal code and country	y)
10801 University Bo Manassas, Virginia United States of Am	20110-2209
Date of deposit	Accession Number
20 May 1997	209061
C. ADDITIONAL INDICATIONS (leave blank if not applicable	This information is continued on an additional sheet
D. DESIGNATED STATES FOR WHICH INDICATION	
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The indications listed below will be submitted to the Internations Number of Deposit") For receiving Office use only	al Bureau later (specify the general nature of the indications e.g., "Accession For International Bureau use only
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Authorized Refricts Harrod PCT/Internat'l Appl Processing Disc. (703) 305-3870	Authorized officer

Form PCT/RO/134 (July 1992)

418

ATCC Deposit No. 209061

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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UNITED KINGDOM

Page 2 ATCC Deposit No. 209061

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NETHERLANDS

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Applicant's or agent's file reference number	PA103PCT	International application	

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

	s made below relate to the 72		ericu to III	N/A .
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B. IDENTIFICA	TIONOFDEPOSIT			Further deposits are identified on an additional sheet
Name of depositary	y institution			
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		as, Virginia		
	United	States of A	merica	
Date of deposit			Acce	ssion Number
Date of deposit	20 May 1997			209062
				
C. ADDITION	AL INDICATIONS(le	eave blank if not applic	cable)	This information is continued on an additional sheet
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ATCC Deposit No. 209062

CANADA

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NORWAY

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FINLAND

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UNITED KINGDOM

422

Page 2 ATCC Deposit No. 209062

DENMARK

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NETHERLANDS

	423		
Applicant's or agent's file reference number	PA103PCT	International application i	

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referr	ed to in the description
on page	N/A .
B. IDENTIFICATIONOF DEPOSIT	Further deposits are identified on an additional sheet
Name of depositary institution American Type Culture	Collection
Address of depositary institution (including postal code and count	
10801 University Bo Manassas, Virginia United States of Am	20110-2209
Date of deposit	Accession Number
20 May 1997	209063
C. ADDITIONAL INDICATIONS (leave blank if not applicable	e) This information is continued on an additional sheet
D. DESIGNATED STATES FOR WHICH INDICATION	NS ARE MADE (if the indications are not for all designated States)
E. SEPARATE FURNISHING OF INDICATIONS (leave	
The indications listed below will be submitted to the Internatio Number of Deposit*)	nal Bureau later (specify the general nature of the indications e.g., "Accession
For receiving Office use only	For International Bureau use only
This sheet was received with the international application RO/US AR 2000	This sheet was received by the International Bureau on:
Authorized officer Volanda Harrod	Authorized officer
PCT/Internat'l Appl Processing Disc.	- 1.55
Form PCT/RO/134 (July 1992)	

424

ATCC Deposit No. 209063

CANADA

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UNITED KINGDOM

425

Page 2 ATCC Deposit No. 209063

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NETHERLANDS

426

Applicant's or agent's file	PA103PCT	International application	
reference number	1 11001 01	i	

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description 72 line N/A			
on page 72 line	Further deposits are identified on an additional sheet		
B. IDENTIFICATIONOFDEPOSIT	ruttiei deposits ale toetitired on arabuttonar siteet		
Name of depositary institution American Type Cultu	re Collection		
Address of depositary institution (including postal code and coun 10801 University Bo Manassas, Virginia United States of Am	ulevard 20110-2209		
Date of deposit	Accession Number		
20 May 1997	209064		
C. ADDITIONAL INDICATIONS (leave blank if not applications)	ble) This information is continued on an additional sheet		
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)			
E. SEPARATE FURNISHING OF INDICATIONS (leave	e blank i(not applicable)		
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")			
For receiving Office use only	For International Bureau use only		
This sheet was received with the international application RO/US CS MAR2000	This sheet was received by the International Bureau on:		
Authorized officer Yolanda Harrod	Authorized officer		
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7789) 365-3670 Form PCT/RO/134 (July 1992)	7703) 305-3070		

427

ATCC Deposit No. 209064

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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UNITED KINGDOM

428

Page 2 ATCC Deposit No. 209064

DENMARK

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NETHERLANDS

	429		
Applicant's or agent's file reference number	PA103PCT	International application	

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

	s made below relate to the 72		erred to in the description N/A
on page	12	line	
B. IDENTIFICA	TIONOFDEPOSIT		Further deposits are identified on an additional sheet
Name of depositary	institution Americ	an Type Cult	ure Collection
Address of deposi	tary institution (includin	g postal code and cou	untry)
	10801 University Boulevard Manassas, Virginia 20110-2709 United States of America		
Date of deposit			Accession Number
Dateorochosii	-20 May 1997		209065
C. ADDITIONA	AL INDICATIONS (Ie	ave blank if not applica	able) This information is continued on an additional sheet
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)			
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ATCC Deposit No. 209065

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UNITED KINGDOM

431

Page 2 ATCC Deposit No. 209065

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NETHERLANDS

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Applicant's or agent's file reference number	PA103PCT	International application	

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description		
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B. IDENTIFICATIONOFDEPOSIT	Further deposits are identified on an additional sheet	
Name of depositary institution		
American Type Culture	Collection	
Address of depositary institution (including postal code and country	r)	
10801 University Boul	evard	
Manassas, Virginia 2	0110-2209	
United States of Amer	ica	
Date of deposit	Accession Number	
20 May 1997	209066	
C. ADDITIONAL INDICATIONS (leave blank if not applicable	This information is continued on an additional sheet	
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D. DESIGNATED STATES FOR WHICH INDICATION	S ARE MADE (if the indications are not for all designated States)	
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(703) 305-3670		

Form PCT/RO/134 (July 1992)

433

ATCC Deposit No. 209066

CANADA

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UNITED KINGDOM

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Page 2 ATCC Deposit No. 209066

DENMARK

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SWEDEN

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NETHERLANDS

	435		
Applicant's or agent's file reference number	PA103PCT	International application	

(PCT Rule 13bis)

A. The indications	s made below relate to the	microorganism re	ferred to in the description
on page	72	linc	N/A .
B. IDENTIFICAT	TIONOFDEPOSIT		Further deposits are identified on an additional sheet
Name of depositary	institution		,
	America	an Type Culi	cure Collection
Address of deposit	tary institution (including	g postal code and co	ountry)
	10801 (University I	Boulevard
		as, Virginia States of A	
	United	states of r	
Date of deposit			Accession Number
	20 May 1997		209067
C. ADDITIONA	AL INDICATIONS (lea	we blank if not applic	rable) This information is continued on an additional sheet
D. DESIGNATE	ED STATES FOR WH	ICH INDICATI	IONS ARE MADE (if the indications are not for all designated States)
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ATCC Deposit No. 209067

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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FINLAND

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UNITED KINGDOM

437

Page 2 ATCC Deposit No. 209067

DENMARK

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NETHERLANDS

П	Applicant's or agent's file reference number	PA103PCT	International application	

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism reference on page	red to in the description N/A	
B. IDENTIFICATIONOF DEPOSIT	Further deposits are identified on an additional sheet	
Name of depositary institution American Type Cultur	re Collection	
Address of depositary institution (including postal code and count	ייי)	
10801 University Boo Manassas, Virginia United States of Ame	20110-2209	
Date of deposit	Accession Number	
20 May 1997	209068	
C. ADDITIONAL INDICATIONS (leave blank if not applicable	This information is continued on an additional sheet	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)		
E. SEPARATE FURNISHING OF INDICATIONS (leave)		
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ATCC Deposit No. 209068

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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UNITED KINGDOM

Page 2 ATCC Deposit No. 209068

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NETHERLANDS

		441	
Applicant's or agent's file reference number	PA103PCT	International application	

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism refer		
onpage 72 tine	N/A	
B. IDENTIFICATIONOF DEPOSIT	Further deposits are identified on an additional sheet	
Name of depositary institution		
American Type Cultur	e Collection	
Address of depositary institution (including postal code and count	(יִי)	
10001 Hadaa aadaa Baa	1d	
10801 University Bou Manassas, Virginia		
United States of Ame		
Date of deposit	Accession Number	
20 May 1997	209069	
C. ADDITIONAL INDICATIONS (leave blank if not applicable	(e) This information is continued on an additional sheet	
D. DESIGNATED STATES FOR WHICH INDICATION	NS ARE MADE (if the indications are not for all designated States)	
E. SEPARATE FURNISHING OF INDICATIONS (leave t	blankifnorapplicable)	
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ATCC Deposit No. 209069

CANADA

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UNITED KINGDOM

Page 2 ATCC Deposit No. 209069

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NETHERLANDS

Form PCT/RO/134 (July 1992)

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Applicant's or agent's file		International application	
	PA103PCT	tine	
reference number	1 71001 01		
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism refers on page 72, tine	ed to in the description N/A
B. IDENTIFICATIONOFDEPOSIT	Further deposits are identified on an additional sheet
Name of depositary institution American Type Cultur	e Collection
Address of depositary institution (including postal code and count	ιγi)
10801 University Bou Manassas, Virginia United States of Ame	20110-2209
Date of deposit	Accession Number
12 January 1998	209579
C. ADDITIONAL INDICATIONS (leave blank if not applicable	e) This information is continued on an additional sheet
D. DESIGNATED STATES FOR WHICH INDICATION	NS ARE MADE (if the indications are not for all designated States)
E. SEPARATE FURNISHING OF INDICATIONS (leave b	olank ifnot applicable)
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ATCC Deposit No. 209579

CANADA

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UNITED KINGDOM

Page 2 ATCC Deposit No. 209579

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NETHERLANDS

	441	
Applicant's or agent's file reference number	PA103PCT	International application

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

on page 72 line B. IDENTIFICATIONOF DEPOSIT Name of depositary institution	N/A	
Name of depositary institution	Punner deposits are identified on an additional sheet	
American Type Cultu	re Collection	
Address of depositary institution (including postal code and coun	ury)	
10801 University Bo Manassas, Virginia United States of Am	20110-2209	
Date of deposit	Accession Number	
12 January 1998	209578	
C. ADDITIONAL INDICATIONS (leave blank if not applicable)	ole) This information is continued on an additional sheet	
D. DESIGNATED STATES FOR WHICH INDICATION	ONS ARE MADE (if the indications are not for all designated States)	
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E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable) The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")		
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Yolanda Harrod PCT/Internat'l Appl Processing Div.		
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ATCC Deposit No. 209578

CANADA

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NORWAY

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UNITED KINGDOM

Page 2 ATCC Deposit No. 209578

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NETHERLANDS

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Applicant's or agent's file reference number	PA103PCT	International application

(PCT Rule 13bis)

A. The indications made below relate to the microorganism refer	red to in the description
on page	N/A
	Further deposits are identified on an additional sheet
B. IDENTIFICATIONOFDEPOSIT	Puttiet de posits ai e identifica on all additional sièce
Name of depositary institution	
American Type Cultu	re Collection
Address of depositary institution (including postal code and coun	ıry)
10801 University Bo	
Manassas, Virginia	
United States of Am	
Date of deposit	Accession Number .
16 July 1998	203067
C. ADDITIONAL INDICATIONS (leave blank if not applicab.	le) This information is continued on an additional sheet
D. DESIGNATED STATES FOR WHICH INDICATION	NS ARE MADE (if the indications are not for all designated States)
E. SEPARATE FURNISHING OF INDICATIONS (leave	blant if not applicable)
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Form PCT/RO/134 (July 1992)

PCT/US00/05881

ATCC Deposit No. 203067

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NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

Page 2 ATCC Deposit No. 203067

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later that at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

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NETHERLANDS

	453	
Applicant's or agent's file reference number	PA103PCT	International application

(PCT Rule 13bis)

A. The indications made below relate to the microorganism reference on page	red to in the description N/A
B. IDENTIFICATIONOF DEPOSIT	Further deposits are identified on an additional sheet
Name of depositary institution American Type Cultu	ure Collection
Address of depositary institution (including postal code and count	(ử)
10801 University Bo Manassas, Virginia United States of Am	20110-2209
Date of deposit	Accession Number
16 July 1998	203068
C. ADDITIONAL INDICATIONS (leave blank if not applicable	(e) This information is continued on an additional sheet
D. DESIGNATED STATES FOR WHICH INDICATION	NS ARE MADE (if the indications are not for all designated States)
E. SEPARATE FURNISHING OF INDICATIONS (leave. The indications listed below will be submitted to the Internatio Number of Deposit")	blank if not applicable) nal Bureau later (specify the general nature of the indications e.g., "Accession
For receiving Office use only	For International Bureau use only
This sheet was received with the international application	This sheet was received by the International Bureau on:
RO/US 08 MAR 2000	Authorized officer
Yolanda Harrod PCT/Internat'i Appi Processing Div.	y
Form PCT/RO7/34 (101) 1592)	

ATCC Deposit No. 203068

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

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UNITED KINGDOM

Page 2 ATCC Deposit No. 203068

DENMARK

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NETHERLANDS

	456	
Applicant's or agent's file reference number	PA103PCT	International application i

(PCT Rule 13bis)

A. The	e indications	made below relate to the	microorganism refer	
on	page	72	line	N/A
B. IDI	ENTIFICAT	TONOFDEPOSIT		Further deposits are identified on an additional sheet
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		America	n Type Cultur	re Collection
Addres	ss of deposit	ary institution (including	postal code and coun	ıry)
			niversity Bou	
			s, Virginia States of Ame	
		United	States of Aut	
Date of	fdeposit			Accession Number
		1 February 1999		203609
C. AD	DDITIONA	L INDICATIONS (lea	ve blank if not applicab	le) This information is continued on an additional sheet
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				·
D. DE	ESIGNATE	D STATES FOR WH	ICH INDICATIO	NS ARE MADE (if the indications are not for all designated States)
				
E. SE	PARATEF	FURNISHING OF INI	DICATIONS (leave	blank if not applicable)
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Form PCT/RO/134 (July 1992)

457

ATCC Deposit No. 203609

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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FINLAND

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UNITED KINGDOM

458

Page 2 ATCC Deposit No. 203609

DENMARK

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NETHERLANDS

_	4	59
Applicant's or agent's file reference number	PA103PCT	International application F

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page		
B. IDENTIFICATIONOFDEPOSIT	Further deposits are identified on an additional sheet	
Name of depositary institution American Type Cultu	re Collection	
Address of depositary institution (including postal code and count	ι,)	
l0801 University Bo Manassas, Virginia United States of Am	20110-2209	
Date of deposit	Accession Number	
1 February 1999	203610	
C. ADDITIONAL INDICATIONS (leave blank if not applicable	e) This information is continued on an additional sheet	
D. DESIGNATED STATES FOR WHICH INDICATION	NS ARE MADE (if the indications are not for all designated States)	
E. SEPARATE FURNISHING OF INDICATIONS (leave b	olank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")		
For receiving Office use only	For International Bureau use only	
This sheet was received with the international application RO/US 0 & MAR 2000	This sheet was received by the International Bureau on:	
Authorized offic Xelanda Harrod PCT/Internat'i Appl Processing Div. (703) 305-3670	Authorized officer	

Form PCT/RO/134 (July 1992)

460

ATCC Deposit No. 203610

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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UNITED KINGDOM

461

Page 2 ATCC Deposit No. 203610

DENMARK

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NETHERLANDS

	462	
Applicant's or agent's file reference number	PA103PCT	International application f

(PCT Rule 13bis)

A. The indications made below relate to the microorganism refer on page	red to in the description N/A .
B. IDENTIFICATIONOFDEPOSIT	Further deposits are identified on an additional sheet
Name of depositary institution	
American Type Cultu	re Collection
Address of depositary institution (including postal code and coun	ııv)
10801 University Bo Manassas, Virginia United States of Am	20110-2209
Date of deposit	Accession Number
17 November 1998	203485
C. ADDITIONAL INDICATIONS (leave blank if not applicable	(e) This information is continued on an additional sheet
D. DESIGNATED STATES FOR WHICH INDICATION	
E. SEPARATE FURNISHING OF INDICATIONS (leave)	
The indications listed below will be submitted to the Internation Number of Deposit*)	nal Bureau later (specify the general nature of the indications e.g., "Accession
For receiving Office use only	For International Bureau use only
This sheet was received with the international application RO/US . 08 MAR 2000	This sheet was received by the International Bureau on:
Authorized officer Yokande Harrod	- Authorized officer
PCT/Internat'l Appl Processing (
(703) 305-3670	<u> </u>

Form PCT/RO/134 (July 1992)

463

ATCC Deposit No. 203485

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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UNITED KINGDOM

464

Page 2 ATCC Deposit No. 203485

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later that at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

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NETHERLANDS

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	403	
Applicant's or agent's file reference number	PA103PCT	International application f

(PCT Rule 13bis)

A. The indications made below relate to the microorganism refer	ed to in the description
on page 72 , line	N/A .
B. IDENTIFICATIONOF DEPOSIT	Further deposits are identified on an additional sheet
Name of depositary institution	
American Type Cultu	re Collection
Address of depositary institution (including postal code and count	r <u>v</u>)
10801 University Bo Manassas, Virginia United States of Am	20110-2209
Date of deposit	Accession Number
18 June 1999	PTA-252
C. ADDITIONAL INDICATIONS (leave blank if not applicable	e) This information is continued on an additional sheet
D. DESIGNATED STATES FOR WHICH INDICATION	NS ARE MADE (if the indications are not for all designated States)
E. SEPARATE FURNISHING OF INDICATIONS (leave b	olank if not applicable)
The indications listed below will be submitted to the Internation Number of Deposit")	nal Bureau later (specify the general nature of the indications e.g., "Accession
For receiving Office use only	For International Bureau use only
This sheet was received with the international application RO/US 03 MAR 2000	This sheet was received by the International Bureau on:
Authorized officer	Authorized officer
Yolanda Hæred PCT/Internet'l Appl Processing Dik.	
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Form PCT/RO/134 (July 1992) - 36/13

466

ATCC Deposit No. PTA-252

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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UNITED KINGDOM

467

Page 2 ATCC Deposit No. PTA-252

DENMARK

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NETHERLANDS

	468	
Applicant's or agent's file reference number	PA103PCT	International application N

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description	
on page 72 line	
B. IDENTIFICATIONOFDEPOSIT	Further deposits are identified on an additional sheet
Name of depositary institution	
American Type Culture Collection	
Address of depositary institution (including postal code and country)	
10801 University Boulevard Manassas, Virginia 20110-2209	
United States of America	
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Date of deposit	Accession Number
.18 June 1999	PTA-253
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet	
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D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
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E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	
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Authorized of Kolenda Harrod	Authorized officer
PCT/Internat*I Appl Processing Div. (703) 305-3670	1,25

Form PCT/RO/134 (July 1992)

ATCC Deposit No. PTA-253

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

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UNITED KINGDOM

Page 2 ATCC Deposit No. PTA-253

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later that at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

	471	
Applicant's or agent's file reference number	PA103PCT	International application ?

INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description			
on page 72, line			
B. IDENTIFICATIONOFDEPOSIT	Further deposits are identified on an additional sheet		
Name of depositary institution			
American Type Culture Collection			
Address of depositary institution (including postal code and country)			
10801 University Boulevard			
Manassas, Virginia	20110-2209		
United States of America			
Date of deposit	Accession Number		
22 December 1999	PTA-1081		
C. ADDITIONAL INDICATIONS (leave blank if not applicable	e) This information is continued on an additional sheet		
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)			
	;		
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)			
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")			
For receiving Office use only	For International Bureau use only		
This sheet was received with the international application			
RO/US 03 MAR2000	This sheet was received by the International Bureau on:		
Authorized Control	Authorized officer		
PCT/Internat*I Appl Processing Div.	,		
(703) 305-3670			

Form PCT/RO/134 (July 1992)

ATCC Deposit No. PTA-1081

CANADA

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2 ATCC Deposit No. PTA-1081

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later that at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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What Is Claimed Is:

- 1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:
- (a) a polynucleotide fragment of SEQ ID NO:X or a polynucleotide fragment of the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
- (b) a polynucleotide encoding a polypeptide fragment of SEQ ID NO:Y or a polypeptide fragment encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
 - (c) a polynucleotide encoding a polypeptide fragment of a polypeptide encoded by SEQ ID NO:X or a polypeptide fragment encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
- (d) a polynucleotide encoding a polypeptide domain of SEQ ID NO:Y or a polypeptide domain encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
 - (e) a polynucleotide encoding a polypeptide epitope of SEQ ID NO:Y or a polypeptide epitope encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
 - (f) a polynucleotide encoding a polypeptide of SEQ ID NO:Y or the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X, having biological activity;
 - (g) a polynucleotide which is a variant of SEQ ID NO:X;
 - (h) a polynucleotide which is an allelic variant of SEO ID NO:X:
 - (i) a polynucleotide which encodes a species homologue of the SEQ ID NO:Y:
 - (j) a polynucleotide capable of hybridizing under stringent conditions to any one of the polynucleotides specified in (a)-(i), wherein said polynucleotide does not hybridize under stringent conditions to a nucleic acid molecule having a nucleotide

sequence of only A residues or of only T residues.

2. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding a protein.

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3. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding the sequence identified as SEQ ID NO:Y or the polypeptide encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X.

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4. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises the entire nucleotide sequence of SEQ ID NO:X or the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X.

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5. The isolated nucleic acid molecule of claim 2, wherein the nucleotide sequence comprises sequential nucleotide deletions from either the C-terminus or the N-terminus.

- 6. The isolated nucleic acid molecule of claim 3, wherein the nucleotide sequence comprises sequential nucleotide deletions from either the C-terminus or the N-terminus.
- 7. A recombinant vector comprising the isolated nucleic acid molecule of claim 1.
 - 8. A method of making a recombinant host cell comprising the isolated nucleic acid molecule of claim 1.
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- 9. A recombinant host cell produced by the method of claim 8.

- 10. The recombinant host cell of claim 9 comprising vector sequences.
- 11. An isolated polypeptide comprising an amino acid sequence at least 5 95% identical to a sequence selected from the group consisting of:
 - (a) a polypeptide fragment of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone:
 - (b) a polypeptide fragment of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone, having biological activity;
- (c) a polypeptide domain of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
 - (d) a polypeptide epitope of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
- (e) a full length protein of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
 - (f) a variant of SEQ ID NO:Y;
 - (g) an allelic variant of SEQ ID NO:Y; or
 - (h) a species homologue of the SEQ ID NO:Y.
- 20 12. The isolated polypeptide of claim 11, wherein the full length protein comprises sequential amino acid deletions from either the C-terminus or the N-terminus.
- 13. An isolated antibody that binds specifically to the isolated polypeptide of claim 11.
 - 14. A recombinant host cell that expresses the isolated polypeptide of claim 11.
- 30 15. A method of making an isolated polypeptide comprising:

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(a) culturing the recombinant host cell of claim 14 under conditions such that said polypeptide is expressed; and

- (b) recovering said polypeptide.
- 5 16. The polypeptide produced by claim 15.
 - 17. A method for preventing, treating, or ameliorating a medical condition, comprising administering to a mammalian subject a therapeutically effective amount of the polypeptide of claim 11 or the polynucleotide of claim 1.

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- 18. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:
- (a) determining the presence or absence of a mutation in the polynucleotide of claim 1; and
- (b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or absence of said mutation.
 - 19. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:
 - (a) determining the presence or amount of expression of the polypeptide of claim 11 in a biological sample; and
 - (b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or amount of expression of the polypeptide.
- 25 20. A method for identifying a binding partner to the polypeptide of claim 11 comprising:
 - (a) contacting the polypeptide of claim 11 with a binding partner; and
 - (b) determining whether the binding partner effects an activity of the polypeptide.

- 21. The gene corresponding to the cDNA sequence of SEQ ID NO:Y.
- 22. A method of identifying an activity in a biological assay, wherein the method comprises:
- 5 (a) expressing SEQ ID NO:X in a cell;
 - (b) isolating the supernatant;
 - (c) detecting an activity in a biological assay; and
 - (d) identifying the protein in the supernatant having the activity.
- 10 23. The product produced by the method of claim 20.

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C
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PCT/US00/05881

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<222> (2003)
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<221> misc feature
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<211> 1126
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (1126)
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18

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<213> Homo sapiens

<220>

<221> misc feature

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<212> DNA
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<221> misc feature
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<223> n equals a,t,g, or c
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 <222> (1325)
<223> n equals a,t,g, or c
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<223> n equals a,t,g, or c
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<221> misc feature
<222> (701)
<223> n equals a,t,g, or c
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24

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. 25

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<211> 1300
<212> DNA
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ecceggtate agegetteet cattettiga atecgegget eegeggtett eggegteaga 180
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caatgcgatg tatattaaac tttttataaa agttaacatt ttgcataata aacgattttt 1260
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<223> n equals a,t,g, or c
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 cttctcaata acttcatctt tctagagact cattacctgt gggcttgtcm aacctggact 180
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 <211> 474
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 <213> Homo sapiens
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<210> 42
<211> 425
<212> DNA
<213> Homo sapiens
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<222> (375)
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<222> (418)
<223> n equals a,t,g, or c
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accatgagaa catcacttgg accaaatgga cttgataaaa tgatggtgga caaggacggc 180
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                                                                   425
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<211> 1187
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (33)
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<222> (41)
<223> n equals a,t,g, or c
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<222> (1149)
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<211> 515
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (217)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (465)
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<223> n equals a,t,g, or c
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gctgcggaag ggccactacg ccgagcgcgt tggcgcnggc regccagtgt acctggcggc 240
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caagaagacg cgaatcatcc cccgccacct gcagctggcc atccgcaacg acgaggagct 360
caacaagctg ctgggcggcg tgacgatcgc ccagggaagg cgtyctgccc aacatccagg 420
ccgtgsttgy tgcccaagaa gaccagcgcc accgtggggc cgaangccct tcggggggca 480
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<210> 45
<211> 1499
<212> DNA
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<221> misc feature
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<223> n equals a,t,g, or c
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gcggctggac gccgacccct ccctccagcg ggtgcgccag gaggagagcg agcagatcaa 180
gacceteaac aacaagtttg cetectteat egacaaggtg eggtttetgg agcageagaa 240
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<210> 46
<211> 393
<212> DNA
<213> Homo sapiens
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<222> (167)
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<221> misc feature
<222> (178)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (219)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (359)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (372)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (378)
<223> n equals a,t,g, or c
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gaagatgttc tcgtccgtgg cgcatctggc cgggcgaacc ccttcaacgc gccccacctg 120
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acactgctgt cgttcctctg gatttagtga aatgccgaat gcargtggac ccccagaant 360
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<212> DNA

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cgcggccgga ccggttcaac ttctcatctt tgttcttctt catatactat aggctgtttg 180
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<210> 48
<211> 939
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (937)
<223> n equals a,t,g, or c
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aacgtgaagc agtggctgca ggagattgac cgctatgcca gcgagaacgt caataagctc 420
ctggtgggca acaagagcga cctcaccacc aagaaggtgg tggacaacac cacagccaag 480
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<213> Homo sapiens
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<222> (352)
<223> n equals a,t,g, or c
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teccegggeg gegegtatgt teaeggetee tteegeggtg egeetgegga anatgttgee 360
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<210> 51

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<221> misc feature
<222> (1629)
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<400> 51
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accepting ctectacity gacaagging gigecotyga ggaggecaac actgagetyg 420
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<210> 52
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taatgcctct gtctagcatg ccaacaagaa tgcattgata ttgtgaacat ttgtgatata 1740
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<210> 53
<211> 490
<212> DNA
<213> Homo sapiens
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490
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<211> 1944
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (634)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1308)
<223> n equals a,t,q, or c
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<211> 994
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<222> (971)
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<210> 56
<211> 328
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<213> Homo sapiens
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<223> n equals a,t,g, or c
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<221> misc feature
<222> (156)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (170)
<223> n equals a,t,g, or c
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cacgaggtca gaagattgag accattctgg ctaacatggt gaacccccat ctctactaaa 240
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<210> 57
<211> 1489
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (710)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1109)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1117)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (1206)
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<221> misc feature
<222> (1211)
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<221> misc feature
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<222> (1311)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (1446)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1467)
<223> n equals a,t,g, or c
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cgaatggtat cacatgcaat attttaatgg agcaatggga gaggctcttt gaaatggggt 180
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<211> 1283
<212> DNA
<213> Homo sapiens
<220>
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<222> (38)
<223> n equals a,t,g, or c
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<222> (550)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (1242)
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<223> n equals a,t,g, or c
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<222> (1263)
<223> n equals a,t,g, or c
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<210> 59
<211> 740
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (696)
<223> n equals a,t,g, or c
<400> 59
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<211> 1291
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (6)
<223> n equals a,t,g, or c
<220>
<221> misc feature
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<222> (7)
<223> n equals a,t,q, or c
<220>
<221> misc feature
<222> (147)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1211)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1283)
<223> n equals a,t,g, or c
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<211> 971
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (856)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (886)
<223> n equals a,t,g, or c
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PCT/US00/05881

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<222> (339)
<223> n equals a,t,g, or c
<400> 70
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<210> 71
<211> 448
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (425)
<223> n equals a,t,g, or c
<400> 71
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                                                                   448
<210> 72
<211> 2825
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (1809)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (2093)
<223> n equals a,t,g, or c
<400> 72
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gcagctgtca atgacactcc gaggtggccg aggcatagac aagaccaatg gtgcccctga 180
gcagataggc ctggatgaga gtggtggtgg tggcggcagt gaccctggag aggcccccac 240
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ctcggatgag gtgcagtctc cagtgagagt gcgtatgcgc aaccatcccc cacgcaagat 420
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<211> 510

<212> DNA

<213> Homo sapiens

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actagtgaaa aaacttcaag atagtgtact agagcggtgg gtaaatgacc ctcagcgtat 180
ggacaagcga acactagcac teetggtget ageceaetee tetgatgtge tagagaatgt 240
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<210> 74
<211> 458
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (388)
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<222> (424)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (448)
<223> n equals a,t,g, or c
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gcctcctggg tcttgataac ttcagtgctt ctgggagctg cccggttggc caccagtctc 180
tgtggaatcc aggggcctct tcccaatatg gatttgacca gcacttcaat tagtgagttt 240
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gtttaagtga caaccatgga ttgcaggaac agactgttga gaagctgttt ttccagtgga 360
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<210> 75
<211> 377
<212> DNA
<213> Homo sapiens
<400> 75
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tagtecacae etatteatee atggacegge acgatggtgt eeegageeae agetegegge 180
tctcccagct gggctcggtg tcccaaggac cctactcgag cgccccgccg ctgtcccaca 240
ccccgtcgtc ggacttccag ccgccctact tcccamcccc ctaccagccg ctcccctamc 300
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<210> 76
<211> 2070
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (20)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (39)
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<222> (88)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (2068)
<223> n equals a,t,g, or c
<400> 76
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taaagattgg ctgacaaaaa tgtcaggaaa acatgatgtt ggagcttaca tgctaatgta 180
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tgctgatctc ttaaagcggg ccttcgtgag gatgagtaca agccctgagg ctttcctggc 300
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gatcgacttt gggcatgcgt ttggatccgc tacacagttt ctgccagtcc ctgagttgat 480
gccttttcgg ctaactcgcc agtttatcaa tctgatgtta ccaatgaaag aaacgggcct 540
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<210> 77
<211> 997
<212> DNA ·
<213> Homo sapiens
<220>
<221> misc feature
<222> (619)
<223> n equals a,t,g, or c
<400> 77
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<210> 78
<211> 1333
<212> DNA
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<213> Homo sapiens
<220>
<221> misc feature
<222> (1254)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1297)
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<400> 78
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<222> (542)
<223> n equals a,t,g, or c
<400> 79
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catgacgaca gcagcctttt gccattagac gcagggtgat ggtgaggatt ccaagggtta 180
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aacttagcga ggtaaatcga ataaaggagc agtcactctc taacagattg taggagaggt 420
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<222> (1942)
<223> n equals a,t,g, or c
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<222> (3201)
<223> n equals a,t,g, or c
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61

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63

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<213> Homo sapiens

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<211> 787
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<211> 1657
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<213> Homo sapiens
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<222> (478)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (485)
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<212> DNA
<213> Homo sapiens
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<211> 707
<212> DNA
<213> Homo sapiens
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<221> misc feature
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<221> misc feature
<222> (45)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (50)
<223> n equals a,t,g, or c
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<212> DNA
<213> Homo sapiens
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<212> DNA
<213> Homo sapiens
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<222> (14)
<223> n equals a,t,g, or c
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<210> 109
<211> 743
<212> DNA
<213> Homo sapiens
<400> 109
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atggttttca ttaaattacc aatattaaat gcacttaatc attgtgtata ggttaaacca 240
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raaatgcagt attaaggatc cagcttctat tgaaaccaat atccatttgc atcataacaa 600
caaacatttg aatgagatgg tcacacttgt acttatcagc aggttccttt aataacaaag 660
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<211> 795
<212> DNA
<213> Homo sapiens
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<222> (645)
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<221> misc feature
<222> (737)
<223> n equals a,t,g, or c
<400> 110
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<210> 111
<211> 1332
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (1)
<223> n equals a,t,g, or c
<220>
<221> misc feature
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<222> (6)
<223> n equals a,t,g, or c
<220>
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<222> (1194)
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<222> (1237)
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<222> (1300)
<223> n equals a,t,g, or c
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tectececa ceagetetee ceacaggee ecteageate atggagacee geageggge 240
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<210> 112
<211> 743
<212> DNA
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<213> Homo sapiens
<220>
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<222> (53)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (272)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (275)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (278)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (590)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (618)
<223> n equals a,t,g, or c
<400> 112
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ggtaacggcc tccaccgacg ggatcggctt cgcatcgccc ggcgtttggc ccaggacagg 180
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gcggctggtg gccacggctg tgaagcttca tggaggtatc gatatcctag tctccaatgc 360
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cgagccagag gattgtgctg gcatcgtgtc tttcctgtgc tctgaagatg ccagctacat 540
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acageceaca ggecagantt gggetetage teetggtgst gtteetgeat teamceaytg 660
gscttttccc acctytgytc amcttactgt tcacctcatc aaatcagttc tgccctgtga 720
aaagatccag ccttccctgc cgt
                                                                   743
<210> 113
<211> 1690
<212> DNA
<213> Homo sapiens
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<220>

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<220>
<221> misc feature
<222> (1664)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1676)
<223> n equals a,t,g, or c
<400> 113
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ccagacacag gccccgagaa gctgccatca ctggagcacc gggactcccc ttggcaccga 180
ggccccgccc ctgccaggcc taaaatgctg gttatcagtg gaggtgatgg ctatgaggac 240
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accacctyct cctgtggagg gtgtgaccct gtctgccgtg gcccaggact sgcccgccca 360
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agggttttct ggagggcagc aggaaggctg gggaattccc catgtacagt atttatgttt 720
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aaaaaaaaa
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<210> 114
<211> 620
<212> DNA
<213> Homo sapiens
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cccaaacctt cagatgcagt gagacctggc cttcctgttg tgcttttcag actttgtttt 300
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tacttcacaa gccaattccc ttcagccagg agctcctggg tgcatttccg tgtcagaaac 600
agtaccgagt cccacccct
<210> 115
<211> 542
<212> DNA
<213> Homo sapiens
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<222> (392)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (412)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (511)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (521)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (535)
<223> n equals a,t,g, or c
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caaggtgtee aceteeggee eeegggeett eageageege teetacacea gegggeetgg 180
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ccgtctcagt gaaccagage ctgctgagec cccttwaage tggaatkgga teccaacate 360
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gttcatcgac aagtgaagca ctggagcagc agaacaaatt tttggagacc aattggagct 480
tettaaagea geagaagaeg egeggagaae ntagacaaat nttegagagt aaatnagaae 540
<210> 116
<211> 525
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (420)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (424)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (517)
<223> n equals a,t,g, or c
<400> 116
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gatatgcgcc agtaacccgt gccagtcagg ttaatggcag taacatttat gccttccgcg 240
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<210> 117
<211> 728
<212> DNA
<213> Homo sapiens
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<210> 118
<211> 948
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (920)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (944)
<223> n equals a,t,g, or c
<400> 118
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<210> 119
<211> 211
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (123)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (125)
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<210> 120
<211> 1308
<212> DNA
<213> Homo sapiens
<400> 120
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1308
<210> 121
<211> 2516
<212> DNA
<213> Homo sapiens
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tgcttctttg ttctaacaag tcatgttttc taacccttct ttcactaagc aaaccagaac 240
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tgccgtagtg ttattcttgt atgccaaatc tttttttccc caaaattagc actttaattt 360
tatttactgt tataatattt gttttcttag attaggtagg aaatcttaat ttggccaccg 420
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<212> DNA
<213> Homo sapiens
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<221> Homo sapiens

<220>
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<222> (1053)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1124)

<223> n equals a,t,q, or c

<220>

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<211> 2114
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (1966)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (2039)
<223> n equals a,t,g, or c
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<221> misc feature

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<213> Homo sapiens
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cacctgtgta cccggcaaag cagatgtgcc tgggcacagg cctggcccac tcgggtatct 360
tectatteet taeggeeace ttacagaggt tetgeetget eeetgtggta egeeetggea 420
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gccagtggcc tgctgaggtc aggctccact atggtgggct cactggccct caaacctcca 540
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<211> 1987
<212> DNA
<213> Homo sapiens
<220>
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<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (14)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (517)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1960)
<223> n equals a,t,g, or c
<400> 125
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<211> 1451
<212> DNA
<213> Homo sapiens
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<210> 127
<211> 1234
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (857)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1204)
<223> n equals a,t,g, or c
<220>
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<221> misc feature
<222> (1226)
<223> n equals a,t,g, or c
<400> 127
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<211> 863
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (840)
<223> n equals a,t,g, or c
<400> 128
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cgtggtattc agggacatct cgcccgtcct gaaggacccc gcctccttcc gcgccgccat 180
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<211> 1238
<212> DNA
<213> Homo sapiens
<400> 129
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<210> 130
<211> 379
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (373)
<223> n equals a,t,g, or c
<400> 130
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<212> DNA
<213> Homo sapiens
<400> 131
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<222> (963)
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gegetteeeg caceteeegg egetgetget acaeeggege egecageate tgecagageg 600
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<211> 1855
<212> DNA
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<221> misc feature
<222> (1818)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (1845)
<223> n equals a,t,g, or c
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<212> DNA
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<221> misc feature
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<221> misc feature
<222> (1236)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1255)
<223> n equals a,t,g, or c
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PCT/US00/05881

WO 00/55173

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getectgeag catggteect geettaggee tacetgatgg aagtaaagee teaaceacaa 1200
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<213> Homo sapiens
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<212> DNA
<213> Homo sapiens
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<211> 2759
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<223> n equals a,t,g, or c
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<211> 1241

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WO 00/55173

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WO 00/55173

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109

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111

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<211> 1028

<212> DNA

<213> Homo sapiens

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<211> 1425

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<220>
<221> misc feature
<222> (1359)
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<211> 780
<212> DNA
<213> Homo sapiens
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<222> (285)
<223> n equals a,t,g, or c
<400> 150
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<213> Homo sapiens
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<222> (1061)
<223> n equals a,t,g, or c
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<210> 153
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<222> (35)
<223> n equals a,t,g, or c
<400> 153
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ggcgcacc gagcgcactc tctagcccgg cagatgaagg cgaacggcgg cggccggact 180
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<211> 695
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<223> n equals a,t,g, or c
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<222> (499)
<223> n equals a,t,g, or c
<400> 155
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<213> Homo sapiens
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<221> misc feature
<222> (1113)
<223> n equals a,t,g, or c
<400> 157
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120

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121

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126

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131

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<222> (4288)
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135

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<211> 243

<212> DNA

<213> Homo sapiens

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<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (266)
<223> n equals a,t,g, or c
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<222> (738)
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cagcatggcc tgcatctggg aagggacaca ggttgtccag agcccctggc acaactgctg 720
agneanatge tgtggagnea getgttaece tgtaageeae tggeeeagea eetgeetaea 780
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<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (37)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (49)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (370)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (567)
<223> n equals a,t,g, or c
<400> 182
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<210> 183
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<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (1082)
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<220>
<221> misc feature
<222> (1094)
<223> n equals a,t,g, or c
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ceteacegtg teegegetet tttegeggat ettegggaag aageagatge ggatteteat 180
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<220>

PCT/US00/05881

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<220>
<221> misc feature
<222> (1910)
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<211> 1902
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<220>
<221> misc feature
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<220>
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<222> (535)
<223> n equals a,t,g, or c
<220> ·
<221> misc feature
<222> (559)
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<212> DNA
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<222> (639)

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<221> misc feature
<222> (1769)
<223> n equals a,t,g, or c
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149

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<222> (2585)
<223> n equals a,t,g, or c
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<211> 2316
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<221> misc feature
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<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (2302)
<223> n equals a,t,g, or c
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153

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<211> 1147

<212> DNA

<213> Homo sapiens

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<222> (5)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (6)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (11)

<223> n equals a,t,g, or c

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<221> misc feature
<222> (12)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (19)
<223> n equals a,t,g, or c
<220>
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<222> (1145)
<223> n equals a,t,g, or c
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1147
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<210> 202
<211> 688
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (477)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (684)
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<223> n equals a,t,g, or c
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<210> 203
<211> 304
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (269)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (287)
<223> n equals a,t,g, or c
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<211> 417
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (380)
<223> n equals a,t,g, or c
<400> 204
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<211> 551
<212> DNA
<213> Homo sapiens
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<222> (450)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (458)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (471)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (484)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (519)
<223> n equals a,t,g, or c
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<210> 206
<211> 1101
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<213> Homo sapiens
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<221> misc feature
<222> (21)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (479)
<223> n equals a,t,g, or c
<400> 206
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<210> 207
<211> 515
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (428)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (439)
<223> n equals a,t,g, or c
<220>
<221> misc feature
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<222> (449)

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<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (456)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (474)
<223> n equals a,t,g, or c
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<213> Homo sapiens
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aatctggaca tcattttccc tttcagagca tagaatgcag ggggatccag ggaatgggtt 180
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<211> 658
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<223> n equals a,t,g, or c
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<223> n equals a,t,g, or c
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<222> (577)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (636)
<223> n equals a,t,g, or c
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<221> misc feature
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<223> n equals a,t,g, or c
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cgtaaatatg tcgctatcca gcagtggttc gcggagaaac atccggtgcc gttctactcc 240
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<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (94)
<223> n equals a,t,g, or c
<400> 211
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<211> 1271
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (1222)
<223> n equals a,t,g, or c
<400> 212
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cgtggaaaaa tacgagaaac agatcaagca ctttggcatg cttcgccgct gggatgacag 180
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ccagacaatc qtcatqcaat ttatcctgga gctggccaag agcctaaagg tggacccccg 360
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aaaaaaaaa g
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<211> 1025
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (991)
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<221> misc feature
<222> (1007)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (1019)
<223> n equals a,t,g, or c
<400> 213
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<211> 1087
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (1075)
<223> n equals a,t,g, or c
<400> 215
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<211> 1977
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (8)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (11)
<223> n equals a,t,g, or c
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<222> (1873)
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<400> 216
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PCT/US00/05881

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<223> n equals a,t,g, or c
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<223> n equals a,t,g, or c
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<223> n equals a,t,g, or c
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<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (31)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (34)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (591)
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<221> misc feature
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178

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<211> 2580

<212> DNA

<213> Homo sapiens

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<223> n equals a,t,g, or c
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<222> (2558)
<223> n equals a,t,g, or c
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<212> DNA
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<213> Homo sapiens

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<211> 2853
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192

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<221> misc feature
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<210> 268
<211> 1846
<212> DNA
<213> Homo sapiens
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<223> n equals a,t,g, or c
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<221> misc feature
<222> (1816)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (1832)
<223> n equals a,t,g, or c
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<211> 601
<212> DNA
<213> Homo sapiens
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<222> (536)
<223> n equals a,t,g, or c
<220>
<221> misc feature
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<222> (556)
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<222> (876)
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<210> 271
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<222> (194)
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<221> misc feature
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<223> n equals a,t,g, or c
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<221> misc feature
<222> (2484)
<223> n equals a,t,g, or c
<400> 271
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<213> Homo sapiens

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<221> misc feature
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218

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220

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223

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225

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227

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228

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230

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231

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233

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237

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247

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PCT/US00/05881

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aaagagaaac tttttcccag ctgggtgctg tggctcacac ctgtgaatcc cagccctttg 180
gnaggetgna gtgggcagat egettgagee caggagtttg agateageet gggcaacatg 240
gtgaantcca tetetgtgaa aaatacaaaa attagecagg tgtggtggtg cgcgcctgtn 300
anteceaget actagggagg etgaaggtgg gnggnttgnt tnageeeagg aggttgagge 360
tgcattnggc tgggattcaa accatgttac tccntgacca ngtgngncct ntttcaaann 420
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263

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264

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265

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<223> n equals a,t,g, or c

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tgtcagtcag tgcgtgaagc caccaccgcc tccggtggna tgaatgcagc ctccccccga 120
ctggncagac accgntgnaa cgggnattat ttcaccctca gagagaggct gatcactatg 180
caaaaacaac tgggaggaaa cccagaagta tattgaatga gcagtgcaga ttagagttgc 240
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ccatatcgat gggcancaat tgncaattat tgtgnagcaa tacacacggg gtttccangg 300
gagtnttaaa tgccttaaag taattaaaan ccggggcaat nccnttttac ggatgttttg 360
ctggggtttc cgtttttaac caacattttt ntnggggncc gnccacaaat tttggggttg 420
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cttcctttcc tgtagggaat ctcacgtaaa atgaaatctt ccctccccca aggtgtccgc 120
aatgtngcca ntgtctgtct gcagattggc tacccaactg ttgcatcagt accccattct 180
atcatcaacg ggtacnaacg antectggcc ttgtctgtgg agacggatta caccttccca 240
cttgctgaan aagtcanggc ttcttggctg atccatctgc cttngtggct gctgcccngt 300
tggctgctgc caccacact gctcctgctg ctgctgcncc ccancttaag ttnaaaccca 360
agaaaatccg aagatccgan aaagatntgg attgggtctc tttgactaat caccaaaa
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tegetatect gaegetggtg aaegeeegt acaagegagg attttactge ggggatgaet 120
ccatccggta cccctaccgt ccagatacca tcacccacgg gctcatggct ggggtcacca 180
tcacggccac cgtcatcctt gtctcggccg gggaagccta cctggtgtac acagaccggc 240
totatteteg ctcggactte aacaactacg tggctgctgt atacaaggtg ctggggactt 300
cctgtttggg gctgccgtga gccagtctct gacagacctg gccaagtaca tgattgggcg 360
tctgaagccc aattctaanc gtctgcgaac ccgattgaac cggtcaatgc tcgtnatgtg 420
cagtggagaa gtttgcaggg aacctnttga ttcacgagca gtgtttttaa tcggaatntc 480
tttgnn
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<222> (244)
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ttcaactana agtatcanaa tatagcnttc cagaaaaccc cgaancanag tcactgacta 120
catcaaagtc tactacacct tgagaaaaca aatgaacgan aatctatttt cctcattcat 180
taccccaaca ataataggac tccctatcgt aattattntc actatgtttc caagcattga 240
tatncccatc acctacccgn ctnntcaa
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<211> 517
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<222> (332)
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taactggcta gaagtgccca acgtggaatg tttcttttt aaaggcggct cttgaagcga 120
cccggaagcg gaagtggaag aaagttctag tggcttgaga ttaagcctga tcaagatgac 180
aacctcccaa aagcaccgag acttcgtggc agancccatg ggggagaacc agtggggaac 240
ctggctggga ttggtgaant cctgggcaag aaactggaag aaagggtttt gacaaggcta 300
tnttgtcttg gccatttctg gtgctaaaaa anataaaaac tctcccggaa tggtgaaaan 360
ctttttgggc cacccaacat cccgaatgtc cgatgctcca aaatgtgcan cctcttttat 420
gtctttggaa tctctncccc cccccnatt tgaccaattg ganccccctt cctcaagaaa 480
atgttgttnc ccccanttcc ggttttgatt tccccac
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<222> (226)
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<223> n equals a,t,g, or c
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<222> (267)
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ggccgctcta gaactagtgg ggggcccggt acccaattcg ccctatagtg agtcgtatta 120
caattcactg gccgtcgttt tacaacgtcg tgacnnggaa aacntnnaat ncttccggct 180
cgtatgttgt gtggaattgt nagcggataa caattcacac aggnancagc tataaccatg 240
attnnnccaa gntcgaaatt aaccntnact aaaggggaca aaagtngggg ctccacg
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gatgggcagc gactacatcc gtgaggtgaa tgtggtgaag tctgcccgtn tcggttattc 60
caaaatgctg ctgggtgttt atgcctactt tatagagcat aagcagcgca acacccttat 120
ctggttgncg acggatggtg atgcccgnga actttatgaa aaacccacgt tgagcccgac 180
tattngngat attccgtcgn tgcntggggc tggccccgtg gtatggcaaa aaagcaccgg 240
gttnaacaag ntcaaccatg naagngtttc anctnaatgg gggggncccc gtaacccaat 300
tngncctata agtnnatggg antttaanaa ttcaatnggc cctngntttt aaatggtgng 360
tgntnggcct tttttttttn gtttgt
                                                                   386
<210> 337
<211> 506
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (13)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (307)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (340)
<223> n equals a,t,g, or c
<220>
<221> misc feature
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<222> (360)
<223> n equals a,t,g, or c
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<222> (404)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (412)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (414)
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<220>
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<222> (437)
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<220>
<221> misc feature
<222> (439)
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<220>
<221> misc feature
<222> (469)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (470)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (471)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (472)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (481)
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  <220>
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  <222> (501)
  <223> n equals a,t,g, or c
  <400> 337
  aattcggcag agnattgaca tcaggaagga cctctatgct aacaatgtcc tatcaggggg 60
  caccactatg taccctggca ttgccgaccg aatgcagaag gagatcacgg ccctagcacc 120
  cagcaccatg aagatcaaga tcattgcccc tccggaggcg caaatactct gtctggatcg 180
  gtggctccat cctggcctct ctgtccacct tccagcagat gtggatcagc aaacagggaa 240
  tacggtgaag ccgggccttc cattgtccac cgcaaatgct ttcttaaaac acttttcctg 300
  gttcctnttc tgtcttttag gcacacaact gtggaatgtn cctgtgggaa tttatggccn 360
  tttcagtttc tttttccaaa tcattcctag ggccaaagtt ttgnattggt tnanccatgg 420
  ggttttttta aataaantnt ggaaataggg ttaattggtt aaaaaaaann nnaaaaaaaa 480
  ntntggggg ggggggccg ntaccc
  <210> 338
  <211> 623
  <212> DNA
  <213> Homo sapiens
· <220>
  <221> misc feature
  <222> (441)
  <223> n equals a,t,g, or c
  <220>
  <221> misc feature
  <222> (508)
  <223> n equals a,t,g, or c
  <220>
  <221> misc feature
  <222> (509)
  <223> n equals a,t,g, or c
  <220>
  <221> misc feature
  <222> (513)
  <223> n equals a,t,g, or c
  <220>
  <221> misc feature
  <222> (537)
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<221> misc feature
<222> (565)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (597)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (599)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (612)
<223> n equals a,t,g, or c
<400> 338
geggaacttg ctactaceag caccatgeec taccaatate cageactgae eeeggageag 60
aagaaggage tgtetgacat egeteacege ategtggeae etggeaaggg cateetgget 120
gcagatgagt ccactgggag cattgccaag cggctgcagt ccattggcac cgagaacacc 180
gaggagaacc ggcgcttcta ccgccagctg ctgctgacag ctgacgaccg cgtgaacccc 240
tgcattgggg gtgtcatcct cttccatgag acactctacc agaaggcgga tgatgggggt 300
cccttccccc aagttatcaa atccaagggc ggtgttgtgg gcatcaaggt agacaagggc 360
gtggtccccc tggcagggac aaatggcgag actaccaccc aagggttgga tgggctgtct 420
gagcgctgtg cccagtacaa ngaaggacgg agctgacttc ggccaagtgg cgttgtgtgc 480
ttaagaatgg gggaacacac cccctcannc ctnggcatca tggaaaatgc caattgntct 540
ggccccgtat gccagtatct ggcancagaa tgcattgggc cattcgggga gtctgananc 600
tcctgatggg ancatgactt gaa
                                                                   623
<210> 339
<211> 344
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (88)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (157)
<223> n equals a,t,g, or c
<220>
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<223> n equals a,t,g, or c

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<221> misc feature
<222> (171)
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<220>
<221> misc feature
<222> (210)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (298)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (317)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (330)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (343)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (344)
<223> n equals a,t,g, or c
<400> 339
tcgacccacg cgtccgcttc aacatgattt gtcacaatct tatcaataat cattactctg 60
ttttttatat ttcaactaaa agtatcanaa tatagctttc cagaaaaaccc cgaaccaaag 120
tcactgacta catcaaagtc tactacacct tggaganaac aaatgaacga naatctattt 180
tecteattea ttaccecaac aataataggn etecetateg taattattat cactatgttt 240
ccaagcatta tattcccatc acctacccga ctaatcaata atcgactcat ctccattnca 300
acaatggatt agtgcantga acatgcaaan gcaaggatta tcnn
<210> 340
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<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (6)
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<220>
<221> misc feature
<222> (13)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (31)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (88)
<223> n equals a,t,g, or c
<220>
<221> misc feature
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<220>
<221> misc feature
<222> (128)
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<220>
<221> misc feature
<222> (135)
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<220>
<221> misc feature
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<220>
<221> misc feature
<222> (146)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (153)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (172)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (173)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (296)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (313)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (339)
<223> n equals a,t,g, or'c
<220>
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<222> (343)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (345)
<223> n equals a,t,g, or c
<400> 340
agacangete tantacgaet cactataggg naaagetggt acgeetgeag gtaceggtee 60
ggaattcccg ggtcgaccca cgcgtccngn aggaggggac agctgcgggc gcggggaggg 120
ggcgccgngc cgcgnggngc catggnggac agnagagccg ggagtccgag anncgggccc 180
gcagcccgag atgtcgccgc catggetteg ccgcagctct gccgcgcgct ggtgtcggcg 240
caatgggtgg cggaagcgct gcgggccccg cgcgctgggg cagcctctgc agctqntagg 300
acgcctcctg gtnacctggc cggaagctgg ggggcgcgna cgncn
                                                                   345
<210> 341
<211> 170
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (20)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (23)
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<223> n equals a,t,g, or c
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<221> misc feature
<222> (43)
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<220>
<221> misc feature
<222> (164)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (170)
<223> n equals a,t,g, or c
<400> 341
acccacgcgt ccgcccacgn tcncgactag ttctagatcg cgnacggccg ctctagagga 60
tccaagctta cttggacatg catgcnacgt catagctctt ctatagtgtc acctaaattc 120
aattcactgg ccgtcgtttt acaacgtcgt gactgggaan atnntaaaan
<210> 342
<211> 387
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (238)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (273)
<223> n equals a,t,g, or c
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<221> misc feature
<222> (328)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (337)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (351)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (366)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (384)
<223> n equals a,t,g, or c
aatgacttgg ttgagtactc accagtcaca gaaaagcatc ttacggatgg catgacagta 60
agagaattat gcagtgctgc cataaccatg agtgataaca ctgcggccaa cttacttctg 120
acaacgatcg gaggaccgaa ggagctaacc gcttttttgc acaacatggg ggatcatgta 180
actegeettg ategttggga accggagetg aatgaageea taccaaacga egagegtnac 240
accacgatgc ctgtagcaat ggcaacaacg ttngcaaact attaactggc ggactactta 300
ctctagcttc ccggcaacaa tttatagnct tggtggnggc gggtaaagtt ncaaggccca 360
tttttnggtt tggccttccg gttngtt
<210> 343
<211> 186
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (26)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (64)
<223> n equals a,t,g, or c
<220>
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<221> misc feature
<222> (71)
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<221> misc feature
<222> (109)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (152)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (153)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (160)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (183)
<223> n equals a,t,g, or c
<400> 343
gctgcaggaa attaacagag tctacnagga aatgtacaag actgatctgg agaaagacat 60
tatntcggac ncatctggtg acttccgcaa gctgatggtt gccctggcna aaggttaaaa 120
aacagaagaa tggtccgtcc ttgaatatga anngaatgan ccacatgccc ggatttcctt 180
ganccc
<210> 344
<211> 611
<212> DNA
<213> Homo sapiens
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<221> misc feature
<222> (8)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (11)
<223> n equals a,t,g, or c
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<222> (285)
<223> n equals a,t,g, or c
<400> 344
tgcaaggnga nactaccete actaaaggga acaaaagetg gagetecace geggtgegge 60
cgctctagaa ctagtggatc ccccgggctg caggaattcg gcacgagctg cgttgggctc 120
cgggaagccg ttcgggctgg ggctgtcggc cgcggggcgg aggcactcgc gcgggggatg 180
gcccactgcg tgaccttggt tcagctgtcc atttcctgtg accatctcat tgacaaggac 240
ateggeteca agtetgaece actetgegte ettttaeagg atgtnggagg gggeagetgg 300
gctgagcttg gccggactga acgggtgcgg aactgctcaa gccctgagtt ctccaagact 360
ctacagettg agtacegett tgagacagte cagaagetae getttggaat etatgacata 420
gacaacaaga cgccagagct gagggatgat gactteetag qqqqtqctqa gtqtteecta 480
ggacagattg tgtccagcca ggtactgact ctccccttga tgctgaagct ggaaaacctg 540
ctgggcgggg gaccatcacg gtctcagctc aggaattaaa ggacaatcgt gtagtaacca 600
tggaggtaga g
<210> 345
<211> 344
<212> DNA
<213> Homo sapiens
<220>
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<222> (289)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (296)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (329)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (331)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (342)
<223> n equals a,t,g, or c
<400> 345
tttccttcta cagtattcct gaatttgacg aatggaaaaa acatatagaa aaccagaaag 60
cctggaaaat aaagtactat aaaggattgg gtactagtac agctaaagaa gcaaaggaat 120 .
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attttgctga tatggaaagg catcgcatct tgtttagata tgctggtcct gaagatgatg 180

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ctgccattac cttggcattt agtaagaaga agattgatga cagaaaagaa tggttaacaa 240
 attttatgga agaccggaga cagcgtagct acatggctta ccagaggant gattcnctct 300
 caactcagac atgaaagatc tataccacnc ntgttgatgg cntt
<210> 346
 <211> 506
 <212> DNA
 <213> Homo sapiens
 <220>
 <221> misc feature
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 <223> n equals a,t,g, or c
 <220>
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 <222> (452)
 <223> n equals a,t,g, or c
 <220>
 <221> misc feature
 <222> (453)
 <223> n equals a,t,g, or c
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 <222> (472)
 <223> n equals a,t,g, or c
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 <221> misc feature
 <222> (480)
 <223> n equals a,t,g, or c
 <220>
 <221> misc feature
 <222> (495)
 <223> n equals a,t,g, or c
 <400> 346
 ggaaaagccc aaggaaaaag caaagaatag caaaaaaaag ggggccaaga aggaagtggt 60
 tgggattggt cttcttttt cttcagtgag ttttttcccc aacaggttct gatggtcctt 120
 tggctaccag caaaccagtc cctgcagaaa agtcaggtct tccagtgggt cctgagaacg 180
 gagtagaact ttccaaagag gagctgatcc gcaggaagcg cgaggagttc attcagaagc 240
 atgggagggg tatggagaag tccaacaagt ccacgaagtc agatgctcca aaggagaagg 300
 gcaaaaaagc accccgggtg tgggaactgg gtggctgtgc taacaaagaa atgttggatt 360
 acagtacttc caccaccaat ggaacccctg angettgcct tgtctgagga cattaacctt 420
 gattccaagg gactgggtct ggggggcact tnnggatctg gactgcacac tntgatgacn 480
 aagggcttgt taaantttcc aaacta
```

<210> 347

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<211> 444
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (289)
<223> n equals a,t,g, or c
<400> 347
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gctacgattt cagagtaccc tggtaatagc tgagcatgca aatgattccc tagcacccat 120
tactttaaat accattactg cagccacacg ccttggaggt gaagtgtcct gcttagtagc 180
tggaaccaaa tgtgacaagg tggcacaaga tctctgtaaa gtagcaggca tagcaaaagt 240
tctggtggct cagcatgatg tgtacaaagg cctacttcca gaggaactna caccattgat 300
tttggcaact cagaagcagt tcaattacac acacatctgt gctggagcat ctgccttcgg 360
aaagaacctt ttgcccagag tagcagccaa acttgaggtt gccccgattt ctgacatcat 420
tgcaatcaag tcacctgaca catt
<210> 348
<211> 358
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (19)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (52)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (187)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (280)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (295)
<223> n equals a,t,g, or c
<220>
<221> misc feature
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<222> (301)

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<223> n equals a,t,q, or c
<220>
<221> misc feature
<222> (317)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (348)
<223> n equals a,t,g, or c
<400> 348
ggcagagaag Cagaagcgnc tcagttagag tccagcaaaa ggtttgccaa anagtttatg 60
gacagacatg gaatcccaac cgcacaatgg gaaggctttc accaaacctg aaaggaagcc 120
tgcagcttca ttttgagtgc agacttccct gctttggttg tgaaaggcca gtggtcttgc 180
agctggnaaa aggggtgatt gttgcaaaga gcaaagaaga ggcctgcaag ctgtacaaga 240
gatcatgcag gtaggctggg tcttctggaa aaatttactn ttgtattcat actgnatgaa 300
ntaccgtttt aagtttnaaa aatgttcctc acattaaggg aaattctntt ttgcaacc 358
<210> 349
<211> 321
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (187)
<223> n equals a,t,q, or c
<220>
<221> misc feature
<222> (206)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (240)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (294)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (295)
<223> n equals a,t,g, or c
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<220>
<221> misc feature
<222> (301)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (316)
<223> n equals a,t,g, or c
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tgcggaaccc ctacacgggt gccaccttcc tgctggccgc cctgcccacc agcctgctcc 120
tgctgcagtg gtatgagccg ctgcagaagt ttctgctgct gaagaacttc tccagccctc 180
tgcccanccc agctgggatg ctgganccgc tggtgctgga tgggaaggag ctgccgcagn 240
gtttttttgg ggccgaaggg cctaaagggc ccggttgccg gttcctgttc caanncctgc 300
ncctgggagg ttggcnttaa g
                                                                   321
<210> 350
<211> 742
<212> DNA
<213> Homo sapiens
<220>
<221> misc feature
<222> (618)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (653)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (658)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (683)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (689)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (702)
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<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (707)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (714)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (719)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (722)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (734)
<223> n equals a,t,g, or c
<400> 350
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cttcaatgca gaagtgcttt tccgagaaga ctgctccccg gacgagttca tcgatgtgat 120
cgtgggcaac cgggtgtaca tgccctgcct gtatgtttat aacaaaatcg accagatctc 180
catggaagag gtggaccgcc tggcccgaaa acccaacagt gtggtcatca gctgcggcat 240
gaagetgaac etggaetate tgetggagat getetgggag taettggeec tgaeetgeat 300
ctacaccaag aagagagac agaggccaga cttcacagac gccatcattc tccggaaagg 360
ggcctcagtg gagcacgtgg gcaccagcac caagtacagt ccgcagcggg tgggcctgac 420
ccacaccatg gagcatgagg acgtcatcca gatcgtgaag aagtaacggc gcctgccggg 480
ccttccgccc acctgctcgt ctcccttggg aggtggtccc actgggacac acaaacaccc 540
aaacagaaaa atacaaatac acgtacccca agaaggggtc cctcaagtct ctgctattta 600
cagaagtttc ttcagtangc agaccaaaaa tgtgttgggc aaaagggctc ggntggangc 660
attttccata agactgagcc ctnttcatng ggggttttga gnttgantgc ttancctgna 720
tntgtgcctc caancccctg ac
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<212> DNA
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gggctgacgt ttaaccagac cagcgagtca ctcagcgcac tggttaaggc gggggtaagc 120
ggtgaggctc agattgcgtc catcagccag agtgtggcgc gtttctnctc tgcatccggc 180
gtggaggtgg acaaggtcgt tgaagccttc gaggggggcc cgtacccatt tgcctatagt 240
aagcgtatta naataattgc cgtgttttaa an
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<211> 256
<212> DNA
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<222> (252)
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gcagacgtcc agagcagagt cagccagcat gaccgagcgc cgcgtcccct tctcgctcct 60
geggggcccc agetgggacc cetteegega etggtacceg catageegec tettegacca 120
```

```
ggccttcggg ctgccccggc tgccggagga gtggtcgcag tggttaggcn gcagcagctg 180
gccaggctac gtgcgccccc tgcccccgc cgcatcgaga gccccgcagt ggccgngccc 240
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<222> (522)
<223> n equals a,t,g, or c
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<222> (545)
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ggttcccttc cacgctgtgg aagcattgta ctttnggtct tcatgataaa tctngctgct 60
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gctcactcgt tgggtccgtg ccacctttaa aanctgtaac actcaccgcg aaggtctgca 120
acttcactcc tggggccagc aagaccacga gtgcaccgag aggaatgaac aactctggac 180
acaccatett taagaacegt aatacteace geaagggtet geaactteat tettgaagte 240
agtgaggcca agaacccatc aattccgtac acatttnggt gactttgaag agactgtcac 300
ctatcaccaa gtggtgagac tattgccaag cagtgagact attgccaagt ggtgagacca 360
tcaccaagcg gtgagactat cacctatcgc caagtggtcc taagtgtgaa cgtgaagtcc 420
ccagccctgc tgctgagcca gttgctgccc tacatggaga acaagaaggg tgctgtcatn 480
ctggnctctt ccattgcagc ttataatcca gtagtggcgc tnggtgtcta caatgtcagc 540
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<222> (225)
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aactagtgga tcccccgggc tgcaggaatt cggcacgagt cgtctcaggc tcgtagttcg 120
cetteaacat geeggaacea gegaagteeg eteeegegee caagaaggge tegaagaaag 180
ccgtgactaa ggcgcagaag aaggacggca agaagcgcaa ggnanccgca aggagagcta 240
ctccgtatac gtgtacaagg tgctgaagca ggtccacccc gacaccggca tctcctctaa 300
ggccatggga atcatgaact ccttcgtcaa cgacatcttc gaacgcatcg cgggtgaggc 360
ttcccgcctg gcgcattaca acaagcgctc gaccatcacc tccagggaga tccagacggc 420
cgtgcgcctg ctgctgcccg gggagttggc caagcacgcc gtgtccgagg gcaccaaggc 480
cgtcaccaag tacaccagcg ctaagtaaac ttgccaagga gggactttct ctggaattt 539
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<211> 435
<212> DNA
<213> Homo sapiens
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<222> (422)
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<222> (424)
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atgaggacac actctctgtg gcactgccat atttctggga gcactttgat aaggacggct 120
ggtccctgtg gtactcagag tatcgcttcc ctgaagaact cactcagacc ttcatgagct 180
gcaatctcat cactggaatg ttccagcgac tggacaagct gaggaagaat gccttcgcca 240
gtgtcatcct ttttggaacc aacaatagca gctccatttc tggagtctgg gtcttnccng 300
gccaggagct tgcctttccg ctgagtccag attggcaagt ggactacgaa gtcatacaca 360
tggcggaaac tggatctggc aagcgaggag acccanacgc tggttcgaga gtacttttnc 420 -
nngngagggg gcctt
<210> 356
<211> 502
<212> DNA
<213> Homo sapiens
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<223> n equals a,t,g, or c
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<222> (426)
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<223> n equals a,t,g, or c

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<222> (457)
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<222> (497)
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gaagaatgaa cagaagggag agaagattcc tcggtgcttg ccagtttgtg ggaagcccgt 120
gaaccccgtg gaacagaggc agcgcatcat cggagggcaa aaagccangg ggatagtggg 180
ggcgtttttg cagtaaggga cccgaacact gatcgctggg tggccacggg catcgtgtnc 240
ctngggcatc gngtgcagca gggccttatg gcttnttaca ccaaagtnct cnaacttncg 300
tggccttgga tcaagnnaga cctngganca ggaggactnc cgccccanca ttcactaggt 360
tecnaateca gngageagtt tegeanaaan canecanaca canetteece etntttngnn 420
acconneagn gtetetnttn anatneetne tngeaennna neceaeaace eeceenenee 480
cccncccc cccccncnc cc
<210> 357
<211> 440
<212> DNA
<213> Homo sapiens
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<222> (45)
<223> n equals a,t,g, or c
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<222> (262)
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<222> (300)
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<222> (316)
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<223> n equals a,t,g, or c
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<222> (360)
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<222> (402)
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<221> misc feature
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<223> n equals a,t,g, or c
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<222> (418)
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<222> (426)
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ctgttcaggc cggagccaca gaccgccgtt gaatgggcgg atgctaatta ctatctcccg 120
aaagaatccg cataccagga agggcgctgg gaaacactgc cctttcagcg ggccatcatg 180
aatgcgaatg ggcagcgact acatccgtga gtggaatgtg gtgaagtttg cccgtntcgg 240
ttattccaaa atgctgctgg gngtttatgc ctactttata gggcataagc agnggaacan 300
ccttatttgg tttccncagg atggtggatg cccgagaant ttttggaaaa cccacgttgn 360
gncgattatt tcgggganat ttccggngnt gttggggttt gnccccntgg gttttggnaa 420
aaaganccgg gtaaaaggtt
                                                                   440
<210> 358
<21İ> 234
<212> DNA
<213> Homo sapiens
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<222> (46)
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<223> n equals a,t,g, or c
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tgtgatgaag gagatgggag gccatcacat tntagtcctc tttttgctca aggggggcta 120
taaatttttt gctgacctgc tggattacat caaaggactg antagnaaat agtgnataga 180
tccattcctc atgaactgtg gatttttngc agatctgaag agctattgtn atga
<210> 359
<211> 668
<212> DNA
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<222> (19)
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<222> (20)
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<222> (552)
<223> n equals a,t,g, or c
<220>
<221> misc feature
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305

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<220>
<221> misc feature
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aagctggtac geetgeaggt accggteegg aatteeeggg tegaceeaeg egteeggggt 120
gtttgaggta cataagaaaa atgtaagggg tgaattcact tattatgaaa tacaagataa 180
tacagggaag atggaagtgg tggtgcatgg acgactgacc acaatcaact gtgaggaagg 240
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gagatetgta atteatagte acateaaggt cateaagace aggaaaaaca agaaagacat 360
actcaatcct gattcaagta tggaaacttc accagacttt ttcttctaaa atctggatgt 420
cattgacgat aatgtttatg gagataaggt ctaagtgcct aaaaaaaatgt acatatacct 480
ggttgaaata caacactata catacacacc ancatatata ctagcttgtt aatcctatgg 540
aaatggggta tntggagnnc ttttttaatt tttcatagnt ttttttnat aanaatggca 600
tattttggat ctacaacttc tatgatttga aaaaatacct taacccttat cttttttgng 660
aaaaaana
                                                                   668
<210> 360
<211> 401
<212> DNA
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<213> Homo sapiens

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gacgatagct gaaaactgta cgataaacgg tacgctgagg gcggaaaaaa tcgtcgggga 180
cattgtaaag geggegageg eggettttee gegeeaggtg gaaageagtg tggaetggee 240
gtcaggtacc cgtactgtca ccgtgaccga tgaccatcct tttgatcgcc agatagtggt 300
getteegetg aegtttegeg gaagtaageg taetgteage ggeaggaeaa egtattegat 360
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<212> DNA
<213> Homo sapiens
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<220>
<221> misc feature
<222> (189)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (236)
<223> n equals a,t,g, or c
<400> 361
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tgagccgtaa ttatcatctg cgcgggcgta ttctgcaggt gccgtcgaac tataacccgc 120
agacgcggca atacagcggt atctgggacg gaacgnttaa accggcatac agcaacaaca 180
tggcctggng tctgtgggat atgctgaccc atccgcgcta cggcatgggg aaacgncttg 240
gtgcggcgga tgtggataaa tgggcgctgt atg
<210> 362
<211> 248
<212> DNA
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<222> (5)
<223> n equals a,t,g, or c
<220>
<221> misc feature
<222> (37)
<223> n equals a,t,g, or c
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<222> (41)
<223> n equals a,t,g, or c
<220>
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<222> (52)
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<222> (74)
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<222> (185)
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<222> (194)
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<223> n equals a,t,g, or c
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cgaatcccát ctcngcaagg agctgctgga aaaagtcgag ctgacggagg ataacgccag 120
cagactggag gagttttcga aagantggaa ggatgccagt nataagtgga atgccatgtg 180
ggctntcaaa attnagcaga ccaaagacgn caaacgantt ttattctgct atttagtagt 240
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248
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 <212> DNA
 <213> Homo sapiens
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 <223> n equals a,t,g, or c
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 <222> (137)
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 <222> (145)
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 <222> (147)
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 atctggaggc gacggggctg tatcaggtgc cgttgtcagc ggcacagccg ggcgatgtgc 120
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 <210> 364
 <211> 352
 <212> DNA
 <213> Homo sapiens
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tgctctggtt ctcatgacgg cagatgcagc gangaggctc aatgttacac cactggcaag 120
aatagtagca tttgctgacg ctgctgtaga acctattgat tttccaattg ctcctgtata 180
tgctgcatct atggtnctta aagatgtggg attgaaaaaa gaagatattg caatgtggga 240
agtaaatgga agcctttagt ctggttgtac tagcaaacat taaaaatgtt ggagattgga 300
tccccaaaaa gtgaatatnc anggnaggag ctgtttcncn ggggacatcc ca
<210> 365
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<222> (242)
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ggettgtgee getgetggan tgacageett negaggettt getgtetegg caeggnaggt 120
ctggcaaacc anggacagac caggnacatg ggaccaaagc cggaacctcc tgctcaacgg 180
gaagteetan eecaccaaag tgegeetgat etggggggge teectneece eagteaageg 240
gncggcggat gaactggatn nacgccccgg at
<210> 366
<211> 254
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<221> misc feature
<222> (192)
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<222> (208)
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<222> (209)
<223> n equals a,t,g, or c
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<222> (236)
<223> n equals a,t,g, or c
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<222> (27)

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<222> (244) <223> n equals a,t,g, or c <400> 366 ggctctacta ggactcacta tanggaaagc tggtacgcct gcaggtaccg gtccggaatt 60 cccgggtcga cccacgcgtc cgcttctctg cctagaaggg ataatattat cactcttcgt 120 tataataaca atcaccatct taattaacca ccttacatta gccagcataa cccctatcat 180 ccttcttgta tntgcagcct gtgaagcnnc actggggctt atccctttta gttatnatct 240 caantacata cgga 254 <210> 367 <211> 185 <212> DNA <213> Homo sapiens <400> 367 gattggattc gacaacaaaa aagacctgct tatctcggtq ggcgatttgg ttgatcgtqg 60 tgcagagaac gttgaatgcc tggaattaat cacattcccc tggttcagag ctgtacgtgg 120 aaaccatgag caaatgatga ttgatggctt atcagagcgt ggaaacgtta atcactggct 180 gctta 185 <210> 368 <211> 458 <212> DNA <213> Homo sapiens <220> <221> misc feature <222> (3) <223> n equals a,t,g, or c <220> <221> misc feature <222> (4) <223> n equals a,t,g, or c <220> <221> misc feature <222> (6) <223> n equals a,t,g, or c <220> <221> misc feature <222> (15) <223> n equals a,t,g, or c <220> <221> misc feature

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<222> (415)
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<222> (433)
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ccggagtgag ccttgaacgc ctggacctgg acctcacagc tgacagccag ccacccgtct 120
tcaaggtctt cccaggcagt accactgagg actacaacct tattgttatn gaacgtggcg 180
etgecgetge aenaceggee agecagggae tgegeetgea ggaacecetg gngeeeeace 240
cctggntggn atggccattg tcaaggagga ggagacggag gctgccattg gagcccctcc 300
tactgccact gagggncctg agaccaaacc tgtgcttatn gctcttgagg agggtcctgg 360
tgctgagggt tcccggctgg actcactagt ggcanaacna ctcnggctgg aagtngtage 420
tctgagggac tcngccccag tgttggccgg gacctgat
                                                                   458
<210> 369
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<222> (47)
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<222> (225)
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<222> (239)
<223> n equals a,t,g, or c
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ccccgcctgc ngccctgttt gcactcggcc tgtagtgcct gcntagggcc cgcngccccg 120
ccgccgccaa cagctcgggg gacggcgggg cggcgggcga cggcaccgtg gtggactgtc 180
ccgtgtgcaa gcaacagtgc ttctccaaag acatcgtgga gaatnatttc atgcgtgana 240
gtggcagcaa ggctgccacc gacgcccagg atgcgaacca gtgctgca
<210> 370
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<212> DNA
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<222> (53)
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<222> (263)
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ntcctccgcc gccgcggact ccggcagctt tatcgccaga ntccctgaac tctcgctttc 120
tttttaatcc cctgcatcgg ntcaccggcg tgccccacca tgtcagacgc agccgtagac 180
accageteeg aaateaceae caaggaetta aaggagaaga aggaagtttt ggaaagagge 240
agaaaatgga agagacggcc ctncttaacg gggaatgcta atttagggaa at
<210> 371
<211> 477
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<221> misc feature
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<222> (451)
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tggttccaag cataaaagaa cggacagatc aattttatgt tgtttacgaa aaggagaatc 120
tggccagtca tggcaagggt taacaaaaga aagggcaaag cttaattggc ttagtgtcga 180
cttcaataat tgggaaagac tgggaagatg attcaaatga agacatgtct aattttgaat 240
cgtttctctg aggattcaca agacagtgat gatggnaaaa atgccagatc tgggagtaag 300
ggaatattgt contcacctg ggtttttgag gaaaggaaaa tnaactttct ctggcaaggt 360
tttccataat ttgngaggaa ttccccgagt ttgttagcnc ctaaagggcn gttatgctcg 420
tatttgnccc actntaaccc ctttttnnca nccggtttgt ttttttaaaa gggcttc
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<211> 443
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 agaaganatc cttnacccct gtaggaatgt ttttgaaact aaatttnatg aacgtnaaat 120
 ttnccagtgg ttattatgaa cttccttgtc gaagttgaaa ggtgaacaac nctnatattg 180
 caaataccgt agagetteag agtgeaagat tetecaetgn angttgggea tteacaaatg 240
 ttggatettt cccaccgtgg gatgaagggt tcagaggcat tgcacccaaa atnacccggg 300
 tgaacatacc cagnccaaag cccaggggna cattnatcgn ggacaggccc nccagaattt 360
 ggcntgttct ttnccagttg gtaggtgtgg aacttggggt tgaattnatt ncttaaccga 420
 attttnccgn ttccttaacc gag
                                                                    443
. <210> 373
 <211> 464
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 <213> Homo sapiens
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 <222> (235)
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 gagacttggg gatggaaccg cacagagccg cgggcccttt gcagctgcga ttttcgccct 120
 acgttttcaa cggaggtact atactggcaa ttgctggaga agattttgca attgttgctt 180
 ctgatactcg attgagtgaa gggttttcaa ttcatacgcg ggatagcccc aaatnttaca 240
 aattaacaga caaaacagtc attggatgca gcggttttca tggagactgt cttacgctga 300
 caaagattat tgaagcaaga ctaaagatgt ataagcattc caataataag gccatgacta 360
 cgggggcaat tgctgcaatg ctgtctacaa tcctgtattc aaggcgcttc tttccatact 420
 atgtttacaa catcatcggt ggacttgatg aagaaggaaa gggg
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